HMDJ

HITEC Medical and Dental Journal

ISSN(Print): 2789-4355

JUNE 2022 / VOLUME 2 / NUMBER 1

HMDJ

HITEC Medical and Dental Journal

REVIEWERS

INTERNATIONAL

1. Majid Shafiq, MD MPH, Harvard Medical School, Boston,USA
2. Muhammad Sohail Mansoor, MD, Consultant Gastroenterology and Hepatology, 118 Mill Street, Suite 110. Woodstock, GA. USA.
3. Dr. Kashif Ali, Countess of Chester Hospital, Chester, UK.
4. Dr. Maujid Masood Malik, Department of Biomedical Sciences, College of Medicine, King Faisal University, Hofuf, Al-Ahsa, KSA.
5. Dr. Asif Afzal Haq, King Faisal University, Dammam, KSA.
6. Dr. Javed Suleman, Icahn School of Medicine at Mount Sinai, New York City.
7. Dr. Faisal Salim, Royal National Orthopedic Hospital Stanmore, Middlesex, HA7-4LP, UK.
8. Dr Sadia Zeeshan, Dorset county hospital, NHS Foundation Trust, UK.
9. Dr. Zaheer Ahmed, Consultant Pediatric Cardiologist, King Faisal Specialist Hospital, Jeddah, KSA.
10. Dr. Imtiaz Ahmed, Hamad Medical Corporation, Qatar Medical University, Al Wukair, Al Wakrah, Qatar.
11. Dr. Ahmad Badar, Dammam Medical College, Dammam, KSA.
12. Dr. Syed Imtiaz Ali, Medcare Hospital L.L.C. Jumeirah, Dubai, UAE.
13. Dr. Saleem Khamisani, MD Neurologist, 1201, 5th, Avenue, North Saint Petersburg, Florida, USA.
14. Dr. Mohammed Nadir Shah, Oral and Maxillofacial Surgeon, King Abdul Aziz University, KSA.
15. Dr. Iain H Mcvicar, Oral and Maxillofacial Surgeon, Queens Medical Centre, Nottingham University Hospitals NHS Trust, Nottingham, UK.
16. Dr. Mohammad Bayat, Oral and Maxillofacial Surgeon, Shariati Hospital, Tehran, Iran.

NATIONAL

17. Prof. Dr. Aneeq Mirza, Islamic International Medical College, Islamabad.
18. Prof. Dr. Ayesha Farooq, Al-Nafees Medical College. Islamabad.
19. Prof. Dr. Sarah Sadiq, CMH Medical Collage, Kharian.
20. Dr. Babar Chughtai, Wah Medical College, Wah.
21. Prof. Dr. Abida Sultana, HBS Medical College, Islamabad.
22. Prof. Dr. Shezadi Sabah Imran, Wah Medical College, Wah.
23. Brig(R) Prof. Dr. Muzzamil Hasan Najmi, Foundation University Medical College, Rawalpindi.
24. Brig(R) Prof. Dr. Akbar Waheed, Islamic International Medical College, Rawalpindi.
25. Prof. Dr. Sohail Ahmed, Fazaia Ruth Pfau Medical College, PAF Faisal base, Karachi.
26. Prof. Dr. Fareed Aslam Minhas, 12, Lane1, Peshawar Road, Rawalpindi.
27. Prof. Dr. Zubia Athar, A-183,Phase-5 Officers Colony, Wah Cantt.
28. Prof. Dr. Farheen Masood, 34 college road, Safari villas 1, Bahria Town, Rawalpindi.
29. Dr. Uruj Zehra, University of Health Sciences, Lahore.
30. Prof. Dr. Tahir Hussain, Fatima Hospital, Baqai Medical University, Deh Tor, Gadap, Karachi.
31. Prof. Dr. Nargis Anjum, Dean, Faculty of Medicine, University of Karachi.
32. Prof. Maj Gen (R) Waqas Ahmed Kazi, House no 20, 4th Avenue Orchard-C DHA-1, Islamabad.
33. Prof. Brig (R) Tassadaq Khursheed, Al Nafees medical College and Hospital, Islamabad.
34. Dr. Ahsen Farooq, Islamic International Medical college, Islamabad.
35. Dr. Maryam Amjad, KRL Hospital, Islamabad.
36. Prof. Dr. Raheela Yasmin, Islamic International Medical College, Riphah University, Rawalpindi.
37. Prof. Dr. Rehan Ahmed Khan, Islamic International Medical College, Riphah University, Rawalpindi.
38. Prof. Irshad Bhutto, LUMHS, Hyderabad.
39. Prof. Sikandar Hayat, Khyber Teaching Hospital, Peshawar.
40. Prof. Dr. Muhammad Ayub, Muzaffarabad Medical College, AJK.
41. Prof. Dr. Munazza Asad, Al-Nafees Medical College, Islamabad.
42. Prof. Dr. Brig. Abdul Haleem, Mohi ud Din Medical College, Mirpur, AJK.
43. Col Qamar Zia, CMH Malir Cantt, Karachi.
44. Prof. Dr. Aqib Sohail, Oral & maxillofacial Surgeon, College of Dentistry, Lahore Medical & Dental College, Lahore.
45. Prof. Dr. Mohtada Hassan, Dental Section, Watin Medical & Dental College, Rawalpindi.
46. Prof. Dr. Syed Nasir Shah, Khyber College of Dentistry, Peshawar.
47. Dr. Zahra Khalid, Armed Forces Institute of Dentistry, Rawalpindi.
48. Dr. Maimoona Siddiq, Oral & Maxillofacial Surgeon Dental College HITEC-1MS, Taxila.
49. Dr. Afifa Kulsoom, Department of Community Medicine Rawalpindi Medical University.
50. Prof. Gulshan Ara Trali, Swat Medical College, Swat.
51. Dr. Neelofar Shaheen, DHPE&R Peshawar Medical College, Peshawar.
52. Dr. Maidah Hanif, Department of Oral and Maxillofacial Surgery/A&E Foundation University College of Dentistry & Hospital, Islamabad.
53. Maj Gen (R) Dr. Arshad Mahmood, Department of Urology & Kidney Transplant, Begum Akhter Rukhsana Memorial Trust, Safari Hospital, Rawalpindi.
54. Dr. Saima Qamar, Consultant Gynecologist & Obstetrician, Rawalpindi.
55. Dr. Arfan ul Bari, Consultant Dermotologist CMH, Rawalpindi.
56. Dr. Brig (R) Prof. Dr. Waqar Azim Niaz Consultant Urologist and transplant Surgeon, Rawalpindi.
57. Dr. Naeem Raza, Consultant Dermatologist PAEC, General Hospital, Islamabad.

HMDJ

HITEC Medical and Dental Journal

AIMS & SCOPE

HMDJ is the journal of HITEC Institute of Medical Sciences (HITEC-IMS), Taxila. It is an open access, peer-reviewed, bi-annual journal that aims to keep the medical & dental health professionals updated with the latest information relevant to their fields.

HMDJ welcomes scholarly work from medical and allied subjects (basic & clinical), community health issues and medical education. It publishes original research, review articles, case reports, editorials, letters to editor, short communication, book reviews, recent advances, new techniques, debates, adverse drug reports, current practices, and conference reports. All publications of HMDJ are peer reviewed by subject specialists from Pakistan and abroad.

OBJECTIVES

1. To publish original, peer reviewed clinical and basic sciences articles.
2. To promote research culture in our institute and beyond, by inculcating the habit of medical writing in doctors.
3. To assist physicians to stay informed about the developments in their own & related fields.
4. To support knowledge & experience sharing among the health professionals for the benefit of patients.
5. To attain the top-notch ethical medical journalism by delivering credible and reader- friendly publications.

HMDJ
HITEC Medical and Dental Journal
JUNE 2022 / VOLUME 2 / NUMBER 1

CONTENTS

EDITORIAL

CHALLENGES OF STARTING A NEW MEDICAL JOURNAL

Irfan Shah

Department of Oral and Maxillofacial Surgery, Dental College HITEC-IMS, Taxila, Pakistan

Are you planning to start a new scientific medical journal? Great! Yes, for sure it will be great service to the medical profession, medical research, your institution as well as to all those who would like to publish their scientific work in a high-quality medical journal.

Like all other new enterprises, starting and running a successful good quality peer-reviewed biomedical scientific journal, however, presents a variety of challenges[1,2]. Designating an editorial board, legal and ethical imperatives, getting recognition from national and international regulatory bodies, financial viability and last but not the least convincing potential researchers and authors to submit their scientific work for publication in the new (yet not-well-known) journal are some of the major challenges.

First and foremost, a vibrant editorial board must be established that comprises members with active and current research credentials. A journal's quality is only as good as its editorial board, advisory board, and reviewers. Ideally, the members should have good visibility and collaborative relationships with researchers in their shared areas of interest. The Editor-in-Chief should not only have good leadership qualities but must also have good relationships with research communities and leaders, nationally and internationally. Most importantly, these members should be able to dedicate time to the journal above and beyond their on-going engagements.

Once the key personnel are in place, an office with supporting clerical staff should be set up. The initial administrative tasks may include designing an impactful website, engaging a professional manuscript management system (software), applying for ISSN number (or two ISSN numbers in case of both print and online publications).

Several decisions must be made after thorough deliberation. These include, but are not limited to, understanding the legal requirements of both local and international bodies of standards, frequency of publication (annual, bi-annual, quarterly, monthly etc.), type of Peer Review system to be used (single blind, double blind, or open peer review) and type of research (original research, reviews, clinical case-studies etc.)

The International Committee of Medical Journal Editors (ICMJE) recommends a journal format standard wherein each manuscript should comprise at least 7 components (Structured Abstract, Introduction, Methodology, Results, Analysis, Discussion, and Conclusion)[3]. Authors should be mandated to follow this standard. Furthermore, authors should be required to declare their conflicts of interest and sources of funding, if any.

The journal website should provide comprehensive and detailed guidelines to authors. All the limitations and conditions (word limit, page limit, maximum figures/tables etc.) should be clearly visible. Additionally, policies regarding plagiarism should be clearly elucidated. Last, but not the least, details about processing fees, publication charges, likely time to submission for review and likely time to publication should be prominently displayed to ensure transparency.

There are numerous databases that index internationally recognized journals. The editorial team must endeavour to get the journal registered and indexed in these databases (Directory of Open Access Journals (DOAJ), Medline PubMed, PubMed Central, Scopus etc.).

Recognition by local bodies like Pakistan Medical Commission (PMC) and Higher Education Commission (HEC) can

CAPSULE SUMMARY

The challenging steps of starting & running a biomedical journal include :

- Designating an editorial board
- Legal imperatives; getting NOC and Declaration from Government agencies
- Obtaining recognition from international regulatory bodies; ISSN number and indexation in databases
- Obtaining recognition from national regulatory bodies; HEC/PMC
- Financial viability
- Designing an impactful website
- Engaging a professional manuscript management system
- Persuading the potential researchers to submit their scientific work

Correspondence to: Prof. Dr. Irfan Shah, Principal, Dental College HITEC-IMS, Taxila Cantt.

Email: drshah121@hotmail.com

Conflict of Interest: None
Financial Disclosure: None

Received: 25-05-2022
Accepted: 07-06-2022

contribute to local acceptance. Down the line, recognition by Clarivate Analytics, getting an impact factor and application for a DOI number are important landmarks that ensure the credibility, visibility, and readership of a journal internationally.

The journal should subscribe to and purchase software tools that would ensure good quality English language and grammar as a supplement to reviewers and editors. Furthermore, the journal will have to subscribe to plagiarism checking software (like Turnitin) to screen all manuscripts.

The journal should ensure adequate funding to sustain itself. Funding sources may include university funds, government grants, support from HEC, subscription charges and/or advertisements.

One major challenge faced by a new journal is to get articles for publication from authors and researchers[4]. Getting recognition from PMC, HEC and Indexation mostly requires time and only come after successful publication of several issues. It is during this time that most authors are hesitant to submit their articles to a new journal and it is very difficult to find articles with authentic scientific data. It takes personal contacts to convince authors for submissions. It would be wise to collect scientific articles for at least two issues before bringing out the first issue. This will not only make bringing out the second issue easier but will also give the editors ample time for collecting manuscripts for the third and then subsequent issues.

Starting and maintaining a journal requires a substantial commitment in terms of capital and human resource. Unless the journal is backed by an institute that can finance and support this endeavour and people who have interest in research and ability to overcome the challenges listed above, it is impossible to sustain a credible and recognized journal on a long-term basis. However, once all these challenges have been overcome, successful publication of each volume over the years makes the efforts exerted and resources allocated worth it.

REFERENCES

1. Trikha A. On starting a new medical journal; problems, challenges, and remedies. Indian Anaesth Forum. 2016; 17:3–5
2. Jawaid SA, Jawaid M. How to run a successful journal. Pak J Med Sci. 2017; 33:1517-20.
3. "Uniform requirements for manuscripts submitted to biomedical journals. International Steering Committee of Medical Editors" (PDF). doi:10.1136/bmj.1.6162.532. PMC 1598112. Retrieved 22 August 2020.
4. Nundy, S., Kakar, A., Bhutta, Z.A. (2022). How to Start a New Medical Journal? In: How to Practice Academic Medicine and Publish from Developing Countries? Springer, Singapore. https://doi.org/10.1007/978-981-16-5248-6_36

COMMENTARY PAPER

HEADING TOWARDS INNOVATION AND TRANSLATING EVIDENCE INTO CARE OF HEALTH; A PROJECT AT HITEC INSTITUTE OF MEDICAL SCIENCES (HITEC-IMS)

Maj Gen (R) Prof. Dr. Hamid Shafiq, HI(M)

Department of Medicine, HITEC-IMS, Taxila, Pakistan

ABSTRACT

Pakistani medical colleges tend to produce medical practitioners rather than medical researchers who are life-long learners. Nonetheless, without research, the practice remains outdated. Medical institutions should focus on shifting this trend and align with global innovation trends. HITEC is one such institute playing a role in developing research culture and setting an example for other institutes in this low resource country.

INTRODUCTION

Research trend is rising globally, with China and the United States taking the lead. Research output is correlated with a nation's culture, which can be assessed on the Hofstede scale. This scale measures culture as a subject of programming of the human mind in six dimensions. Variables on this scale have been studied to be related with research, where research promoting variables include individualism and indulgence in desires. At the same time, uncertainty avoidance and power distance are negatively correlated with research[1]. Hofstede scoring of national culture for Pakistan reveals a low score on individualism (14 out of 100), and indulgence (0 out of 100) and high on uncertainty avoidance (70 out of 100), thus reflecting a less favorable mindset for research in nation[2]. On the contrary, a report by Web of Science data analytics in 2018 discovered Pakistan to have the most extensive global gain of 21% in research output in one year. The author assumed that this gain could be due to political policies on science, democracy, and international collaboration for funds[3]. This could mean that the right policies and facilitation for researchers can go a long way in taking us ahead, and such initiatives should be institutionalized.

CAPSULE SUMMARY

In order to provide a zealous research environment within an institute, research projects should be designed judiciously and with time line. To promote this concept, a project, supported by the major stakeholders, was carried out at HITEC-IMS Taxila, Pakistan. A positive shift in organizational behavior towards research was witnessed within a short span of time.

Correspondence to: Maj Gen (R) Prof. Dr. Hamid Shafiq, HI(M), Principal HITEC-IMS Taxila.

Email: hamidshafiq.amc@gmail.com

Conflict of Interest: None

Financial Disclosure: None

Received: 25-04-2022

Accepted: 25-05-2022

HITEC IMS RESEARCH PROJECT

In order to provide an environment within an institute that facilitates research, research programs should be designed wisely. One such program was started in HITEC medical college by the Head of the institute in July 2021 to promote research culture among faculty and students to fulfill the research needs of faculty, institute and the local community. This initiative started as a pilot project, with careful planning based on theories of a change process, human behavior, and best practices in management. It was realized that the cultural context was unfavorable and more facilitation was required for research culture to prevail. It started with feasibility analysis, and given the shortage of resources, it was decided to include as input whatever resources are available, using human resources strengths of the institute by matching skills with tasks and covering gaps with time. Staff was designated by sparing from other departments, and within two months, a fully equipped research cell got established. For providing a conducive environment, a flexible structure was chosen that reflected the organic model of organization[4]. Research cell was divided into different units of publication, research and development, and research review, and power dynamics were handled carefully.

The goal of the research culture project was to develop culture by research mentorship to make all departments self-sufficient in research skills and reach the stage of self-reliance, where contribution to evidence generation and use becomes a routine behavior for faculty and they no longer need any research program. A representative from each department was selected to form a multidisciplinary research team. Meetings for

collaboration and motivation were started. Training of team was the first step in developing a culture to address research illiteracy, which is the most common reason for lagging[5]. Learning by doing was practiced by assigning a project to each department to follow the practices being taught.

RESPONSE BY THE FACULTY

This initiative was positively taken by the majority of the team members. One reason may be that it fulfilled the need of faculty for professional growth, and other may be that it was promoted by the Head of the institute and higher authorities. However, later on, with some difficulties arising in study approvals and time constraints, there was a temporary decline in attendance, motivation, and interest of the team, which settled by involving seniors in encouragement and help of researchers. Although many focal persons did not perceive research as easy, but they managed their time with academic duties and, by the end of

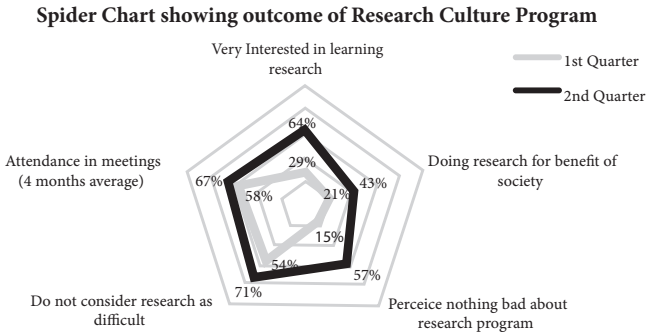

Figure 1: Comparison of 2 Quarters; Data from Focal Persons Feedback of Research Culture Program (where feedback form was filled by 13-14 persons each time) and Research Cell Record

the 2nd quarter, 18 research projects had been started by 17 departments. A survey was done before the start of project and after every quarter. It showed that interest in learning research improved with time especially in clinicians. One highly encouraging finding was the change in interests, with more researchers getting involved in research for the benefits of society and less for their interests or promotions. Average number of Journal clubs done per month rose from 12 in 1st quarter to 16 in 2nd quarter. Quality of synopsis also improved in 2nd quarter with majority synopsis getting approved without changes in single IRB meeting. A comparison of two quarters is shown in Figure 1.

RESPONSE BY THE STUDENTS

Besides faculty, the response of students to this program was remarkable. The research cell had planned activities for students in the 2nd quarter. Nevertheless, having heard about the level of support to researchers, they started showing up in the very 1st quarter in the research cell and participated in research competitions independently. During the 2nd quarter, the research cell took the initiative of forming students' research society. All interested students were allowed to become a part of society as secretaries. Around 30 secretaries were working under the leadership of one student President in different wings, including the Management wing, Research wing, Communication wing, and Media wing. All were assigned clearly defined roles and provided a flexible and friendly environment to work as a strong network. They were motivated in meetings by showing them a purpose in research work of benefiting society. They were trained by workshops and prepared to align research with studies and work where an unanswered question should become the trigger for research[6]. Soon many medical students started their research projects, and a survey showed an increase in students' interest in research. Unlike faculty, students perceived research as easy. Students' society got significant research needs of students fulfilled by research cell and successfully established research culture among students within a short time. By the end of three months of forming society, the list of research projects rose from 18 to 29, an addition of 12 by students. This achievement was cherished by all and convinced seniors that young minds have a lot to offer when it comes to innovation and research if their input is given due recognition, with accessible communication, and when their needs are expressed and fulfilled [7].

CONCLUSION

This program was considered a success, although it was anticipated at the start that bringing change won't be possible. Usually, only 30% of change programs are successful and require a shift in organizational behavior well adapted to change[8]. This project was also well designed with a shift in organizational behavior and was well supported by the majority stakeholders and with the hard work of research team soon encouraging results started showing to the point where this program started getting appreciated outside institute also. Some visitors showed interest in joining research activities at HITEC. Collaboration with other colleges started within the first quarter and internationally within the second quarter. An end-user unit was added that would work on "Translating Evidence into Care of health." It will monitor the use of research findings generated in the institute. It will also suggest research topics that are more beneficial and usable, based on the research needs of the institute and the local community.

CHALLENGES

There were some challenges in sustaining the program. As the culture improved, the research staff got overwhelmed with much work to maintain the culture. There were no incentives for retaining them in this additional duty. The budget was not designated for research cell because that was not a requirement for licensing of the institute. Pakistan Medical Commission, our regulatory authority, places no staff requirement for research departments in its licensing standards. A report by Ministry of health in 2010 mentions that in Pakistan most universities do not take research as a priority and therefore do not dedicate faculty positions, budgets, or infrastructure for research[5]. This is quite critical for institutes that recognize research as a pathway

to recognition among medical community. When already dealing with a challenging context of national culture with high uncertainty avoidance, any further decisive negative factor can markedly sway research culture in our country, no wonder we have a culture of importing guidelines and not relying on generating our own. A dearth of research culture was highly felt during the recent pandemic, where medical universities contributed even lesser than nonmedical ones and this lack of research capacity has raised many questions on the quality of doctors produced in the country. with high uncertainty avoidance, any further decisive negative factor can markedly sway research culture in our country, no wonder we have a culture of importing guidelines and not relying on generating our own. A dearth of research culture was highly felt during the recent pandemic, where medical universities contributed even lesser than nonmedical ones and this lack of research capacity has raised many questions on the quality of doctors produced in the country.

REFERENCES

1. Abraham J. National culture as a correlate of research impact and productivity. F1000Res. 2019;8:237. Published 2019 Feb 28. doi:10.12688/f1000research.18283.3
2. Pakistan - Hofstede Insights [Internet]. Hofstede Insights. 2022 [cited 11 March 2022]. Available from: https://www.hofstedeinsights.com/country/pakistan/#:~:text=Pakistan%2C%20with%20a%20very%20low,other%20societal%2 0rules%20and%20regulations.
3. Makri A. Pakistan and Egypt had highest rises in research output in 2018. Nature [Internet]. 2018;. Available from: https://www.nature.com/articles/d41586-018-07841-9.
4. Gorzelany J, Gorzelany–Dziadkowiec M, Luty L, Firlej K, Gaisch M, Dudziak O et al. Finding links between organisation's culture and innovation. The impact of organisational culture on university innovativeness. PLOS ONE. 2021;16(10):e0257962.
5. Ministry of Health. The Strategy for Health Research, Ministry of Health, Pakistan. World Health Organization; 2010 p. 1-20.
6. Kichloo A. Early Mentoring for Research and Academic Careers. Journal of Investigative Medicine High Impact Case Reports. 2020;8:232470962094931.
7. Hawke L, Relihan J, Miller J, McCann E, Rong J, Darnay K et al. Engaging youth in research planning, design and execution: Practical recommendations for researchers. Health Expect. 2018;21(6):944-949.
8. Anupam Kundu A. The Unfinished Business of Organizational Transformation [Internet]. thoughtworks. 2015 [cited 11 March 2022]. Available from: https://www.thoughtworks.com/insights/blog/unfinishedbusiness-organizational-transformation.

ORIGINAL ARTICLE

ROAD AHEAD; FACULTY'S PROPOSALS FOR EFFECTIVE TRANSITION FROM CONVENTIONAL TO INTEGRATED MEDICAL CURRICULUM

Asma Hafeez[1], Aaiz Feroze Khan[2], Iram Zakria[3], Brekhna Jamil[4]

[1]Anatomy Department, HITEC-Institute of Medical Sciences, Taxila, Pakistan.

[2] Fazaia Medical College, Islamabad, Pakistan

[3]Anatomy Department, HITEC-Institute of Medical Sciences

[4]Institute of Health Professions Education, Khyber Medical University, Peshawar.

ABSTRACT

Objective: To study delve into the faculty's recommendations to the administration as well faculty of a medical college in order to assist a transition from a conventional to an integrated curriculum at the commencement and some years afterwards.

Study Design: Qualitative exploratory study.

Place and Duration of Study: 18 months, Khyber Medical University, Peshawar.

Material and Methods: A qualitative exploratory study involving two undergraduate medical institutions was conducted between April 2018 and October 2018; one of these at the beginning of transition to the integrated curriculum (College-A) while the other successfully doing it for about nine years (College-B). For thematic content analysis, semi-structured interviews (Twelve in number, six from each college) were conducted. Recommendations by the faculty, to facilitate the hands-on transition to integrated curriculum, to administration and faculty were looked at.

Results: According to suggestions for the administration, four themes were identified; "Plan properly and prepare" "hand over the job to willing leadership", "provide incentives", and "establish an efficient system of feedback". As far as the suggestions for faculty are concerned; promote self-directed learning and nurture a collaborative environment surfaced as themes. Equal voices from both colleges were incorporated for all themes, with the exception of hand over the job to willing leadership and nurture a collaborative environment, that were based on the answers mainly from College-B.

Conclusion: Various recommendations came up, that if implemented both by the faculty and administration of a medical college, can bring about a favorable effect on an effortless and workable transition to an integrated medical curriculum.

Key words: *Faculty, Medical college, Curriculum, Undergraduate.*

How to cite this article: Hafeez A, Khan AF, Zakir I, Jamil B, Road ahead; faculty's proposals for effective transition from conventional to integrated medical curriculum. HMDJ 2022; 02(01): 6-10

INTRODUCTION

Endless necessity of a doctor, specially trained for the provision of contextually apt healthcare services, results in constantly expanding medical syllabi to be tutored at the medical institutions [1]. Along the lines of the Flexner report, the conventional curriculum has been the principal option for years going on [2]. Although the main critique was that it demonstrated a gap between theory and practice by preventing undergraduates from integrating because there was a chronological gap in the teaching of both, thus discouraging them [3]. There should be a solution to this scarcity of inter-disciplinary inquiry [4], now extended in the form of a globally acceptable, Integrated curriculum, with the licensing standards of different accrediting bodies [2,5].

An aggressive strategy is required to reverse the tendency of "recommending but not implementing integration," which has been pursued over the past few decades, but with only marginal success, leading to a depressing cycle of "change without difference [5]."

Before implementing any curricular reforms, the faculty must be consulted since they are the common tool used to teach the curriculum [4]. This has the added benefit of increasing responsibility and elevating the course standard [6].

Such improved curriculum is considered right and proper to attain the desired results [7]. Literature, addressing faculty's perceptions in comparison with those of students' about the transition to an integrated curriculum, is scanty [8]. Only

Correspondence to: Prof. Dr. Asma Hafeez, Head of Anatomy Department, HITEC-Institute of Medical Sciences, Taxila Cantt, Pakistan.

Email: drasma.hafeez@gmail.com

Conflict of Interest: None

Financial Disclosure: None

Received: 25-07-2021

Accepted: 18-07-2022

research, at national level, reported faculty perceptions of integrated curriculum prior to implementation and identified process-influencing frame factors 1 .

Literature is silent in terms of any reports from Pakistan about what the faculty recommends regarding the assistance of transition to an integrated curriculum, at commencement and post- implementation phase, thus portraying the evolutionary process down the road.

This research was done in order to get the suggestions by the faculty for an efficient conversion from the traditional / conventional to an integrated medical curriculum on commencement and some duration after changeover.

METHODS

This was a qualitative exploratory study that took 18 months and was conducted at two different undergraduate medical colleges from the private sector. It explored the faculty's suggestions for executing an easy and practically sustainable shift from traditional to an integrated curriculum. Two categories for both medical institutes were made; College-A was at the initial stage of transition, whereas College-B had nine years post-transition experience. After getting ethical permission from both colleges and Khyber Medical University (KMU), participants were selected by purposive sampling technique. As much as possible variation was ensured regarding the gender, specialty and length of service of the participants pool.

After getting an informed consent, the participants were contacted for semi-structured interviews and were fictitiously numbered. Theoretical saturation was observed after six interviews each from both colleges, and the interviews were discontinued. Since sample size decision in advance in a qualitative research comes with some inherent issues, it is always superior to consider, the theoretical saturation, a significant factor [9]. The principal researcher conducted all interviews one after the other. Following two questions with the relevant prompts were asked. Questions were in line with the objectives, and were validated by 05 medical education experts.

Q-1: What steps could be taken by the administration to facilitate a smooth and sustainable transition from traditional to integrated medical curriculum?

Q-2: What steps could be taken by the faculty itself to facilitate a smooth and sustainable transition from traditional to integrated medical curriculum?

Data collection and analysis was done side by side. Every interview was transcribed. Analysis of the thematic content was performed in accordance with the Braun and Clark framework[10]. We adopted this order: familiarity with the data (by repeatedly reading the transcripts), generation of initial codes (using the open code technique), categorization of codes (axial-codes), and completion of resulting themes, with reexamination. Communication of codes and themes between the principal investigator and the assistant researcher was ensured. Up until a mutual understanding was reached, all differences were taken up.

To assure the study quality, audios as well as transcripts were kept safe. Triangulation [11] across the researchers (principal & assistant), across the sites (the two selected colleges) and across the resources (by involving the participants) was implemented. Checking of the members was done by sharing the transcripts with the participants and fitting in any changes they suggested, be it after the interviews were completed [12]. Detailed descriptions were recoded. For the audit trail, one external medical educator was also engaged [11]. Prior to analysis, personal biases were excluded and reflective memos were kept for the sake of reflexivity [13].

CAPSULE SUMMARY

The study brings up following recommendations essential for transition from conventional to integrated curriculum.

- Planning and preparation
- Faculty involvement in planning and execution
- Efficient feedback system
- Provision of incentives
- Robust policies for execution of plan

RESULTS

Question no. 1 sought faculty suggestions on steps the medical college administration could take to expedite the easy & sustainable transition from conventional/ traditional to integrated medical curriculum, while Question- 2 acquired faculty suggestions on the same. It was presumed that because College-A respondents were at the beginning of the process, they came up with recommendations pertinent to the preliminary phase, resulting in an effortless transition, whereas suggestions from College-B would be relevant to both a flowing and a maintainable transition.

Analysis of the thematic content of the transcripts revealed the final four themes for Question no. 1 and two for Question no. 2, wherein axial codes were formed from the initial codes, and then final themes emerged. The themes for administration's actions comprised "plan properly and prepare, "provide incentives" "dedicate the job to willing leadership", and "establish a proper feedback system". Themes for faculty actions included self-directed learning and nurture a collaborative environment. Table-1displays initial and axial codes, final themes, and some quotes that depict the initial codes, verbatim.

All had equal voice from both colleges, concerning the generated themes in reply to question-1, except "dedicate job to willing leadership" that appeared only from responses from College-B. For Question no. 2, which related to suggestions for faculty members, number of responses from both colleges was similar, whereas the faculty of College-B primarily felt a need for a collaborative environment.

Table-I: Initial & axial-codes, final themes with some representative quotes:

Initial Codes	Axial Codes	Final Themes	Representative Quotes
SUGGESTIONS FOR ADMINISTRATION; Question-1			
A coordinating headquarters with leader	"Dedicated leadership"	"Dedicate the job to willing leadership"	"All of these efforts ought to be coordinated under the direction of a central office (a kind of headquarter)". (B-4)
The forthcoming leader Leader on-board	"Willing leadership"		"That shouldn't be done until the leader is on board, if at all possible. Otherwise, no system will function". (B-3)
Training of the faculty Regular workshops holding	"Faculty Training "	"Plan properly and prepare"	"Certainly, to train the faculty. Your faculty cannot work if they are unaware of the modular system. I believe the first and most crucial component is the faculty's training.". (A-2)
Manpower enhancement Augmentation of audiovisual (AV) aids Increased resources Infrastructure	"Resource provision"		"Additionally, all conditions necessary for adding personnel should be made easier. In this system, group instruction is the norm, hence all necessary audio-visual aids should be given. All resources should be made available in accordance with the needs.". (A-4)
Need -assessment Proper planning	"Prior planning"		"The administration should make a proper plan as its first priority". (B-2)
Resolution of conflict Listening to the faculty	"Voice of the faculty"	"Establish a Proper feedback system"	"I believe the problem is that we don't address faculty issues, and I believe that if we did, the disputes would end immediately". (B-3)
Feedback	"Feedback system"		"Administration should properly consider student and teacher's feedback so that we can more effectively collaborate.". (A-5)
Provision of incentives Reward system	"Incentives"	"Provide Incentives"	"One factor provision of the teaching staff with incentives that allow for additional perks like housing, transportation, etc. in place of a wage boost." (A-3)
SUGGESTIONS FOR FACULTY; Question-2			
Show interest Carryout personal evaluation Become forthcoming	"Show flair for personal growth"	"Carry out Self-directed learning"	"Faculty should also evaluate their own performance to determine whether they are staying within the parameters of their goals." (A-4)
Equip themselves Train themselves Updated knowledge Educate themselves Get aware of requirements	"Get trained"		"Faculty members should undoubtedly consider if they would be interested in taking new courses on their own when the modular system was introduced. To better prepare myself and increase my knowledge". (A-2)
Update students well Prepare Meaningful lectures	"Acquire teaching skills"		"They should have the necessary knowledge and keep themselves up to speed with the most recent materials, including textbooks and teaching methods, in order to inform pupils in a timely manner.". (A-3)
Interdepartmental meetings	"Inter-departmental meetings"	"Nurture a collaborating environment"	They can hold intra-departmental meetings, and the ensuing consensus will be beneficial. (B-4)
Communicate with faculty Motivate fellows and colleagues	"Collaboration among faculty"		"So that we don't become overburdened, communication between disciplines and between each other should be good." (B-1)

DISCUSSION

It's hard to introduce change in any set-up, especially in the academics [14]. Resistance by the faculty towards change and their approach to it count as the factors hindering the transition to an integrated curriculum [3,8], henceforth, it is highly recommended that suggestions by the faculty be considered when planning any reforms on education, and the current research is in line with it.

It is impossible to exaggerate the significance of key stakeholders in the fruitful implementation of any program. The theme that surfaced first and foremost for the administration was "to dedicate a willing leadership". Evidence shows that ownership by capable leaders who support educational innovations and believe in them is essential [3]. They can play an important role in fostering a beneficially positive culture by providing structural support and involving the faculty in decision-making at the preliminary level of educational programs [15]. An earlier national study has identified the political will, strong leadership, and program ownership as the elements facilitating the transition to an integrated system 1. Because the faculty at college-B, which has been involved in and overseeing the integrated curriculum for more than nine years, provided the basis for this theme, it can be assumed that giving the responsibility to willing leadership will result in a smooth transition and long-term sustainability. The real leadership can have an added, substantial role in guaranteeing accurate planning & groundwork, the 2nd theme relied on the axial codes of faculty training, resource provision and well-timed preparation and planning.

Introducing change remains a daring concept. In order to bring about effective change, the training needs of all dynamically aboard affiliates must be addressed. The superior and targeted training mustbe steady, and any fresh members should also be "brought up to date" with the ongoing program. Inventive techniques should be assumed [16]. Of paramount importance is the provision of ample and suitable resources by the administration for fruitful results [17]. Teaching an integrated curriculum is definitely a resource-intensive program. Often, in the beginning, resources are insufficient to run the program thereby putting its sustainability at risk. Infrastructure, faculty, and technical support are essential, particularly when switching to ground-breaking teaching methods that heavily rely on faculty development and demand superfluous resources. If the curriculum reform is to be successful, the necessary reserves should be identified at the stage of focused need assessment and the essential support obtained [18].

The published research also suggests another theme: establishing a strong feedback mechanism that pays attention to faculty input while continually changing the curriculum. Recognizing the curricular deficiencies and inconsistencies that faculty members often disclose through feedback is important in order to incorporate any revisions required for the program's continuation [19]. As one of the factors leading to futile reforms is a reluctance to involve faculty in decision-making, paying attention by influential people can help the process both during and after its launch [5].

Establishing and maintaining a curriculum is a difficult endeavor [18]. With so many responsibilities already on their plates, faculty members find it difficult to maintain their ardor for the program. Faculty participation is sparked by the impact of research on career flight, but the desire to devote time to curriculum is diminished [20]. As previously suggested, incentives provided by the institution's administration to faculty may encourage them to participate actively and, as a result, go above and beyond to guarantee the transitioning curriculum's success.

The theme of self-driven learning (as a recommendation to the faculty) is aided by the fact that on one's professional level, the catalysts required for a beneficial transformation comprise awareness, knowledge as well as the attitude [21]. If integration is the goal, the faculty must be eager, encouraging, and completely committed to learning using all available resources [19].

Teaching staff should now be fully trained, equipped and qualified prior to embarking on any reforms on curriculum, like it has already been reported to produce positive results [22,23]. This evidence lends credence to the idea that faculty should adopt an integrated curriculum effectively and sustainably if they want to receive accreditation for doing so.

The essential spirit is destroyed when the traditional curriculum is taught in a disconnected manner, and the boundaries between subjects are also strengthened. Communication and collaboration between disciplines are rendered obsolete by the turf polluted by traditional curricula, which causes opposition among the faculty. In addition, creating cross-links across disciplines, organizing curriculum content rationally, and inter-disciplinary teaching are the main concepts that an integrated curriculum revolves around. All of this is dependent on cross-disciplinary dialogue [3].

The College-B participants' proposal to the faculty of cultivating a collaborative environment emphasizes upon the importance of this strategy for the longevity of curricular improvements. It is consistent with the idea that, as we move up the integration ladder, the boundaries between disciplines must dissolve in order for the integration of fundamental knowledge and its application to be successful [2,24]. The leadership should implement a plan for interdisciplinary collaboration by creating multi-level committees in addition to the faculty's individual efforts [3,18]. The depths of an integrated curriculum's multidimensional structure, which depends on a number of interdependent pieces, also call for a thorough approach [25].

CONCLUSION

This study has found a number of recommendations that, if taken on board by the administration and faculty, might facilitate the seamless and long-lasting transition to an integrated medical curriculum. Policies that guarantee the application of these recommendations and faculty involvement in both planning and implementation must be implemented to

achieve an effortless transition.

LIMITATIONS

One restriction was a limited time that prevented students from participation. A prospective study where the same faculty might have discussed the pre- and post-experience could be done. This may accurately represent how attitudes change over time. Triangulation with future student perceptions can also improve the validity and generalizability of the findings.

AUTHORS' CONTRIBUTION

Asma Hafeez	Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the Article
Aaiz Feroze Khan	Analysis and interpretation of data, Drafting the Article, Critical revision
Irum Zakria	Analysis and interpretation of data, Drafting the Article, Critical revision
Brekhna Jamil	Analysis and interpretation of data, Critical revision

REFERENCES

1. Khan AA, Asher A, Ahmad A, Iqbal S, Khan NA. Frame factors for implementation of integrated curriculum in public sector medical college-faculty's perspective. Pak Armed Forces Med J. 2016;66(6):891-97.
2. Brauer DG, Ferguson KJ. The integrated curriculum in medical education: AMEE Guide No. 96. Med Teach. 2015;37(4):312-22. doi: 10.3109/0142159X.2014.970998
3. Muller JH, Jain S, Loeser H, Irby DM. Lessons learned about integrating a medical school curriculum: perceptions of students, faculty and curriculum leaders. Med Educ. 2008;42(8):778-85. doi: 10.1111/j.1365-2923.2008.03110.x
4. Khalil MK, Kibble JD. Faculty reflections on the process of building an integrated preclerkship curriculum: a new school perspective. Adv Physiol Educ. 2014;38(3):199-209. doi: 10.1152/advan.00055.2014
5. Hopkins R, Pratt D, Bowen JL, Regehr G. Integrating basic science without integrating basic scientists: reconsidering the place of individual teachers in curriculum reform. Acad Med. 2015;90(2):149-53. doi: 10.1097/acm.0000000000000437
6. Eslami J, Khademi M. An evaluation of the elements of internal medicine physiopathology curriculum in general practice based on the perspectives of faculty members of Shiraz University of Medical Sciences. J. Adv Med Educ Prof. 2015;3(2):62.
7. Olopade FE, Adaramoye OA, Raji Y, Fasola AO, Olapade-Olaopa EO. Developing a competency-based medical education curriculum for the core basic medical sciences in an African Medical School. Advances in medical education and practice. 2016;7:389. doi: 10.2147/AMEP.S100660
8. Blin F, Munro M. Why hasn't technology disrupted academics' teaching practices? Understanding resistance to change through the lens of activity theory. Comput Educ. 2008;50(2):475-90.
9. Sim J, Saunders B, Waterfield J, Kingstone T. Can sample size in qualitative research be determined a priori? Int J Soc Res Methodol. 2018;21(5):619-34 doi: 10.1187/cbe.12-09-0163.
10. Maguire M, Delahunt B. Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. AISHE-J. 2017;9(3). doi: 10.1016/j.compedu.2007.09.017
11. Shenton AK. Strategies for ensuring trustworthiness in qualitative research projects. Education for information. 2004;22(2):63-75. doi: 10.1016/S0140-6736(00)04134-9
12. Imafuku R, Saiki T, Kawakami C, Suzuki Y. How do students' perceptions of research and approaches to learning change in undergraduate research? Int J Med Educ. 2015;6:47.
13. Starks H, Brown Trinidad S. Choose your method: A comparison of phenomenology, discourse analysis, and grounded theory. Qual Health Res. 2007;17(10):1372-80.
14. Brownell SE, Tanner KD. Barriers to faculty pedagogical change: Lack of training, time, incentives, and… tensions with professional identity? CBE—Life Sci Educ. 2012;11(4):339-46. doi: 10.3109/0142159X.2010.507711
15. Ho DCW. Teacher participation in curriculum and pedagogical decisions: Insights into curriculum leadership. Educational Management Administration & Leadership 2010;38(5):613-24.
16. Bland CJ, Starnaman S, Wersal L, Moorhead-Rosenberg L, Zonia S, Henry R. Curricular change in medical schools: how to succeed. Acad Med. 2000;75(6):575-94. doi: 10.1097/00001888-200006000-00006
17. Licari FW. Faculty development to support curriculum change and ensure the future vitality of dental education. J Dent Educ 2007;71(12):1509-12.
18. Thomas PA, Kern DE, Hughes MT, Chen BY. Curriculum development for medical education: a six-step approach: JHU Press; 2016.
19. Malik AS, Malik RH. Twelve tips for developing an integrated curriculum. Med Teach. 2011;33(2):99-104.
20. Sachdeva AK. Faculty development and support needed to integrate the learning of prevention in the curricula of medical schools. Acad Med. 2000;75(7):S35-S42. doi: 10.1097/00001888-200007001-00006
21. Grol R, Wensing M. What drives change? Barriers to and incentives for achieving evidence-based practice. Med J Aust 2004;180(6 Suppl):S57.
22. 22. Lam T, Irwin M, Chow L, et al. Early introduction of clinical skills teaching in a medical curriculum–factors affecting students' learning. Medical education 2002;36(3):233-40.
23. Ghosh S, Pandya HV. Implementation of Integrated Learning Program in neurosciences during first year of traditional medical course: Perception of students and faculty. BMC Medical Education 2008;8:44.
24. Harden RM. The integration ladder: a tool for curriculum planning and evaluation. Medical Education-Oxford-. 2000;34(7):551-7.
25. Shaheen N, Khan RA, Yasmeen R, Sajid MT. "Probing in the complexities of the integrated undergraduate medical curriculum": A qualitative exploratory study. J Pak Med Assoc. 2022;72(3):452-6.

ORIGINAL ARTICLE

ASSESSMENT OF VARIOUS EPIDEMIOLOGICAL ELEMENTS CONTRIBUTING TOWARDS THE LATE PRESENTATION OF BREAST CANCER IN WOMEN OF KHYBER PAKHTUNKHWA

Ishrat Aziz[1], Saadat Ali[2], Asifa Majeed[3] , Sher Muhammad Khan[4]

[1]Department of Biochemistry, Virtual University, Lahore.

[2]Department of Molecular Genetic, Chughtai Laboratory, Jail Road, Lahore.

[3]Department of Biochemistry and Molecular Biology, Army Medical College, National University of Medical Sciences, Rawalpindi

[4]Department of Oncology, Rehman Medical Institute, Peshawar

ABSTRACT

Objective: To determine various epidemiological elements contributing towards the late presentation of breast cancer in women of Khyber Pakhtunkhwa (KPK).

Study Design: Descriptive Study.

Place and Duration of Study: Institute of Radiotherapy and Nuclear Medicine (IRNUM) Peshawar, one year.

Patients and Methods: After receiving informed consent, 60 female breast cancer patients were included in this study. An interview was conducted in order to record the area of distribution, age at first pregnancy, nutritional & socioeconomic status, familial breast cancer, any gynecological issue, and narcotics & contraceptives use.

Results: The findings suggested that being young at the time of the first pregnancy was a significant risk factor for breast cancer. Another contributor to late-stage breast cancer diagnosis was low socioeconomic status.

Conclusion: This study concluded that young age at first pregnancy and low socioeconomic status were major risk factors for breast cancer and barriers to consultation for breast cancer diagnosis in KPK women. Furthermore, educational reforms for our people are intensely required.

Key words: *Familial breast cancer, narcotics, nutrition*

How to cite this article: Aziz I, Ali S, Majeed A, Khan SM. Assessment of various epidemiological elements contributing towards the late presentation of breast cancer in women of khyber pakhtunkhwa. HMDJ 2022; 02(01): 11-14

INTRODUCTION

Breast cancer affects women all over the world. According to World Health Organization (WHO), approximately 1.7 million breast cancer patients were reported in 2012, accounting for 25% of all cancers [1]. Breast cancer is the most commonly diagnosed cancer in females in the United States, accounting for 30% of all new cancer diagnoses in women [2]. According to research, genetic factors, age at first childbirth, hormonal imbalance, and use of oral contraceptives have all been linked to the onset of breast cancer, Racial, geographical differences, and socio-economic standing are all important elements [3].

Correspondence to: Dr. Ishrat Aziz, Department of Biochemistry, Virtual University, Lahore

Email: ishrat_scientist@yahoo.com

Conflict of Interest: None

Financial Disclosure: None

Received: 05-04-2022

Accepted: 06-07-2022

Breast cancer is the commonest malignancy among Pakistani females [4,5].As per WHO, breast cancer is responsible for a high mortality rate in Pakistani women (31%), with a total cancer mortality rate of 34%. Pakistani women have the highest risk of breast malignancy among Asian women, trailing only Western and African women [6]. Due to a lack of awareness, early detection of breast cancer, which is an efficacious strategy for controlling the prevalence of breast cancer, is a challenge in our population. To improve disease control and prevention, the United Kingdom and the United States have established early diagnosis and screening programs. Programs like these still need to be expanded in Pakistan. However, epidemiological studies have been carried out to learn more regarding the prevalence of different cancers in Pakistan. Data from Rawalpindi [7] Quetta & Karachi [8] , and overall Punjab is available [9-11].

The epidemiological status of breast cancer in Khyber Pakhtunkhwa (KPK) , Pakistan's 3rd most populous province, must be prioritised. IRNUM registered approximately 5,658 cancer patients in the third or fourth stages in 2014. Pakistani women in rural areas lack adequate information about early

detection and treatment to prevent the progression of breast cancer. As a result, extensive data collection on breast cancer in the KPK region is critical. The majority of breast cancer patients present with a late onset, according to common observation. This causes a delay in treatment and has serious consequences. This study attempted to draw attention towards the factors associated with late-stage breast cancer presentation.

CAPSULE SUMMARY

In an effort to recognize the factors behind the late presentation of breast cancer in KPK, the authors found that a low socioeconomic status was the key element. Moreover, higher incidence was found in patient with young age at first pregnancy.

PATIENTS AND METHODS

This descriptive study included 60 females diagnosed with breast cancer who were recruited from IRNUM. The study was designed in accordance with the Helsinki Declaration [12]. All patients gave their informed consent. The patients were chosen randomly for this study. A detailed questionnaire-based interview was used to collect information on area of distribution, age of women at 1st first pregnancy, multiple pregnancies, drug use, gynecological issues, use of contraceptives, and nutritional & socioeconomic status. Using SPSS 20, The qualitative data was analyzed and presented as a percentage & frequency.

Table 1: Area- wise distribution of Carcinoma in KPK

Area	Frequency	Percentage (%)
Swat	7	11.60
Dera Ismail Khan (D.I.Khan)	2	03.33
Dir	3	05.00
Peshawar	**30**	**50**
Kohat	5	08.33
Charsadda	6	10.00
Nowshera	2	03.33
Mardan	3	05.00
Bannu	1	01.66
Waziristan	1	01.66

RESULTS AND DISCUSSION

Peshawar had the highest percentage of breast cancer (41.6 percent), while Bannu and Waziristan, the lowest (1.66%). (Table 1). The average age at the time of the first pregnancy was <30 years, according to our findings. The average age at the time of the first pregnancy was 30 years, according to our findings. Breast cancer was found in 26.6% (16) of women who had their first pregnancy between the ages of 18 and 20, and in 55 % (33) of patients who had their first pregnancy between the ages of 20 and 25. Six patients (10%) had their first pregnancy between 30-40 yrs., five (8.3%) were nulliparous. Despite the fact that western oncologists indicated late pregnancy as a risk factor [13], our data contradicts their findings. We found that our women, younger at their first pregnancy, were at the risk of breast cancer (Table 2). Resultantly, the situation would be beneficial if practiced on a regular basis. Though race and ethnicity might be the factors, to reach a comprehensive conclusion, population-based studies are required. The fact that younger females are presenting with advanced cancer is concerning and necessitates extra care. Self-examination of the breast is crucial in early-stage diagnosis, and necessitates national awareness campaigns.

Number of pregnancies and breast malignancy revealed that 28 patients (46.4 percent) had 2-6 children, 6.8 percent had 11-15 children, and 5 patients (8.3 %) were nulliparous (Table 2). According to this data, multiple pregnancies in the absence of required medical care may be a risk factor for breast malignancy. Because comprehensive data is not available, these findings are inconclusive. The economic situation of patients revealed that 75% of patients belonged to a group of Pakistanis with a monthly income of Rs. 3000-8000, while only 2% of patients had a monthly income of Rs. 100,000 or more (Table 2).

The findings above suggest that socio-economic standing may be a risk factor for breast cancer progression. It is surely a significant reason to avoid regular medical examinations, which could aid in earlier diagnosis [14-15]. Furthermore, an already diagnosed patient can hardly afford the expensive treatment.

Table 2: Risk predictors for breast cancer in KPK women

Variables		Frequency	Percentage (%)
Age at 1st Pregnancy	**18-20**	**16**	**26.6**
	20-25	**33**	**55**
	25-30	**0**	**0**
	30-40	6	10
	40-50	0	0
	Nulliparous	5	8.3
Number of Pregnancies	Nulliparous	5	8.3
	1 child	2	3.3
	2-6 children	**28**	**46.6**
	7-10 children	19	31.6
	11-15 children	6	10
Monthly income in Rs/month	**3000-8000**	**45**	**75**
	>8000	13	21.6
	>10000	2	3.33

We observed that mixed- food consumers outnumbered (46 ,76%) meat lovers (10 ,16.6 %). Women on vegetarian diets made up 6.6 percent of the participants. We did not find any conclusive link between nutrition, narcotics, contraceptives use , gynecological issues with the onset of breast cancer. Ninety-six-

Table 3: Non-Risk factors for breast cancer in KPK women

Variables		Frequency	Percentage (%)
Nutrition	Meat fonders	10	16.6
	Vegetarians	4	6.6
	Mixed	**46**	**76.6**
Narcotics use	Smoking	-	0
	Alcohol	-	0
	Snuff	2	3.33
	None	**58**	**96.6**
Family history of breast cancer	Cancer in 1st degree relative	1	1.66
	Cancer in Mother	1	1.66
	Cancer in sister	4	6.66
	None	**54**	**90**
Use of Contraceptives	Used	4	6.66
	Not Used	**56**	**93.3**
Any Gynecological problems	Present	10	16.6
	Absent	**50**	**83.3**

point six percent (58) of patients were not addicted to narcotics such as alcohol, smoking, or sniffing (Table 3).

Only 6 (9.98%) of the 60 patients had a family history of breast malignancy (Table 3). On account of being genetically predisposed, a positive family history is a factor in the development of breast cancer. The majority of our women were unaware of the screening programs. According to our observations, mostly due to cultural reasons, our women were hesitant to discuss any physical change. We advised them to see their doctor on a regular basis for an early diagnosis and educated other family members as well.

The earlier cancer is detected, the better the chances of cure and survival. The findings of this study suggest that screening and early detection, as well as cost-effective treatment facilities can reduce the incidence of breast cancer in Pakistan.

CONCLUSION

We conclude that young age at first pregnancy and low socioeconomic status are risk factors for late stage breast cancer presentation and are barriers to consultation among KPK women.

RECOMMENDATION AND LIMITATION

Our main limitations were a single-center study and patients' reluctance to participate in the study. This small-scale study discovered that enrollment is required from cities, small towns, and villages. It is vital to deal with the spread of breast cancer.

ACKNOWLEDGEMENT

We thank Dr. Yaqub, IRNUM, Peshawar for providing valuable guidance during sample collection.

AUTHORS' CONTRIBUTION

Ishrat Aziz	Conception and design, Acquisition of data, Drafting the Article
Saadat Ali	Drafting the Article, Critical revision
Asifa Majeed	Analysis and interpretation of data, Critical revision
Sher Muhammd Khan	Conception and design

REFERENCES

1. Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. Int J Cancer. 2015;136: E359-86.
2. Siegel RL, Miller KD, Jemal A. Cancer Statistics, 2017. CA Cancer J Clin. 2017;67: 7-30.
3. Elebro K, Butt S, Dorkhan M, Jernstrom H, Borgquist S. Age at first childbirth and oral contraceptive use are associated with risk of androgen receptor-negative breast cancer: the Malmo Diet and Cancer Cohort. Cancer Causes Control. 2014;25: 945-57.
4. Asif HM, Sultana S, Akhtar N, Rehman JU, Rehman RU. Prevalence, risk factors and disease knowledge of breast cancer in Pakistan. Asian Pac J Cancer Prev. 2014;15: 4411-6.
5. Menhas R, Umer S. Breast Cancer among Pakistani Women. Iran J Public Health. 2015;44: 586-7.
6. Population fact sheets: Pakistan. Estimated incidence, mortality and 5 year prevalence: females: World Health Organization; 2016 [cited 2017 31 August]. Available from: http://gco.iarc.fr/today/fact-sheets-populations?population=586&sex=2#collapse1.
7. Jamal S, Mamoon N, Mushtaq S, Luqman M. Pattern of childhood malignancies: study of 922 cases at Armed Forces Institute of Pathology (AFIP), Rawalpindi, Pakistan. Asian Pac J Cancer Prev. 2006;7: 420-2.
8. Bhurgri Y, Pervez S, Usman A, Khan JA, Bhurgri A, Kasi Q, et al. Cancer patterns in Quetta (1998-1999). J Pak Med Assoc. 2002;52: 560-5.
9. Aziz Z, Sana S, Saeed S, Akram M. Institution based tumor registry from Punjab: five year data based analysis. J Pak Med Assoc. 2003;53: 350-3.
10. Bhurgri Y, Bhurgri A, Nishter S, Ahmed A, Usman A, Pervez S, et al. Pakistan--country profile of cancer and cancer control 1995-2004. J Pak Med Assoc. 2006;56: 124-30.
11. Bhurgri Y, Bhurgri A, Pervez S, Bhurgri M, Kayani N, Ahmed R, et al. Cancer profile of Hyderabad, Pakistan 1998-2002. Asian Pac J Cancer Prev. 2005;6: 474-80.
12. Association GAoWM. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. J Am Coll Dent. 2014;81: 14-8.
13. Newcomb PA, Trentham-Dietz A, Hampton JM, Egan KM, Titus-Ernstoff L, Warren Andersen S, et al. Late age at first full term birth is strongly associated with lobular breast cancer. Cancer. 2011 May 01.
14. Alves Soares Ferreira N, Melo Figueiredo de Carvalho S, Engracia

Valenti V, Pinheiro Bezerra IM, Melo Teixeira Batista H, de Abreu LC, et al. Treatment delays among women with breast cancer in a low socio-economic status region in Brazil. BMC Womens Health. 2017;17: 13.

15. Quaglia A, Lillini R, Casella C, Giachero G, Izzotti A, Vercelli M, et al. The combined effect of age and socio-economic status on breast cancer survival. Crit Rev Oncol Hematol. 2011;77: 210-20.

ORIGINAL ARTICLE

COMMUNITY MEDICINE AS CAREER IN PAKISTAN: CHALLENGES AND OPPORTUNITIES

Naila Azam[1], Bushra Anwar[2]

[1] Foundation University Medical College, Pakistan.

[2] Community Medicine Specialist, Surrey (BC), Canada

ABSTRACT

Background: Community Medicine is a unique specialty with community oriented focus on health care management and services. Though it remains under appreciated, reforms are underway in different countries to effectively train and utilize strengths of these field specialists to develop a strong public health system.

Objective: : To assess challenges of Community Medicine professionals in terms of dissatisfaction with job roles and opportunities available to them.

Study Design: Cross sectional study.

Place and Duration of Study: Social media and eight months.

Material and Methods: A cross sectional study was done in a period of eight months from April to December 2021 on a social media group of Community Medicine professionals including postgraduate residents and fellows. Their career challenges were assessed in terms of dissatisfaction, preference of roles in job and unmet needs. To identify the job opportunities, a survey was also done through extensive search online of all job ads related to public health in year 2021.

Results: Out of 68 doctors, who agreed to participate, 50 were employed in academics and 11 in public health practice. Majority doctors were fully satisfied with the choice of profession (77%), however academicians mostly felt dissatisfied and were willing to assume some role in hospital setting. Survey of job opportunities showed that only 2 jobs mentioned MCPS/ FCPS Community Medicine as acceptable degrees for eligibility.

Conclusion: Community Medicine professionals were found to be mostly engaged in academic jobs, while most of them prefer to pursue practical work of public health in future, though, practical job opportunities were not easily available.

Key words: *Community Medicine, job satisfaction, public health practice, academics.*

How to cite this article: Azam N, Anwar B. Community medicine as career in pakistan: challenges and opportunities. HMDJ 2022; 02(01): 15-20

INTRODUCTION

Public health and Community Medicine are dynamic fields, with a lot of room for innovation[1]. Reforms are more often suggested by experts to keep pace with changing needs. These reforms may vary from conceptualizing public health [2,3] , to integrating Community Health Sciences with clinical practice and redesigning its services [4,5].

Community medicine (CM) is very crucial for public health system but is somehow not getting the desired attention as our clinically-oriented health systems lack recognition of preventive work. There is ambiguity in the scope of CM experts at policy level who despite having medical background and preventive skills with a good grip on Public Health sciences, are outshined by clinicians. The multidimensional skill set of Fellows in Community Medicine place them in a great position where they can creatively contribute to community health services in country [6,7]. Though this field has been globally low on national health budgets in the past but COVID-19 pandemic has adequately highlighted its importance, with an opportunity of getting the due recognition and resources by political forces [8].

Situation analysis in Pakistan shows that gaps in public health functions are a reason of huge burden of diseases, due to poor governance in health and ineffective planning of services. Human Resources for Health (HRH) Vision 2018-2030 recommends a shift towards public health focus by stating that Pakistan being a resource poor and high disease burden country cannot afford an exclusive curative health care model. Therefore funding should be enhanced for entities working on prevention. HRH Vision 2018-2030 also recommends producing appropriately qualified health managers and employing public health specialists as provincial and district managers, replacing the generalists in all provinces [9]. The national health system demand of public health and CM experts is subsequently on rise. Advocacy experts demand that due attention should be given to these specialists, by providing more funds, opportunities of skill building and creative work. An analysis of needs of these professionals is required including training needs to provide Pakistan with a locally responsive health workforce [10]. Many researches have been published in our neighboring countries regarding

Correspondence to: Dr. Bushra, Surrey (BC), Canada.

Email: bushra.anwar@live.com

Conflict of Interest: None

Financial Disclosure: None

Received: 29-04-2022

Accepted: 16-06-2022

professional needs of CM experts and their scope in terms of involvement in clinical settings that varies between countries. In India, CM experts take up preventive and curative role also and are termed as "doctor+" due to these additional roles and align teaching with community health practice [11, 12].

No published study could be found which discussed scope or challenges of CM experts in Pakistan. Since recognition of CM as clinical subject by PMC, the debate regarding scope of subject in clinical settings is generated among experts. This study aimed to assess challenges of CM experts for field and clinical work and challenges related to long term pursuance of career. This intends to inform policy makers and authorities of the needs and opportunities for utilizing strengths of CM experts for benefit of health system, by engaging them in new roles that are not taken up by any specialists as discussed later in this paper.

CAPSULE SUMMARY

More Community Medicine specialists were involved in academics as compared to those in public health practice. However, the academicians were less satisfied with their role and wanted to contribute to public health services. Moreover, very few number of public health related jobs accepted FCPS/ MCPS as their eligibility criteria.

The authors gave the following recommendations:

- Creation of opportunities for public health practice within hospital settings by strengthening linkages between Community Medicine Department and affiliated hospitals.
- Advocacy on the inclusion of FCPS/ MCPS Community Medicine qualification as an eligibility criteria for public health jobs.

METHODOLOGY

In first part of this cross sectional study, a doctors' survey was conducted in April 2021. A total of 120 doctors were approached through a social media platform made for Community Medicine doctors and requested to take part in survey, employing purposive sampling. This included fellows or trainees of College of Physicians and Surgeons Pakistan (CPSP) in Community Medicine. An online form in English was shared with them. Questions included information on their current role and future preferences for pursuing career in the field of Community Medicine and Public Health. They were asked if they prefer to work in hospital setting also to practice public health and what role they would like to play. They were given options of 'Community diagnosis and health planning for catchment population of hospital', 'Infection prevention and control measures in hospital (IPC)', 'Designing and supervising clinical trials and guiding', 'Health education of patients', and 'Preventive pediatrics'. A few questions regarding their satisfaction with the choice of specialization and jobs were also included. Data was entered and analyzed in SPSS and results were presented using charts. Percentages were calculated for all variables and compared across groups using tests of significance.

In the second part of study, a survey of job opportunities from January till December 2021 was conducted by visiting an online forum where Pakistan health sector jobs are listed. This survey was conducted at the end of December 2021. All jobs were listed and categorized according to skills and qualifications required and opportunities for Community Medicine specialists were identified.

RESULTS

i. Survey of Community Medicine Doctors

Roles preferred in career

Table 1: Current and future preferred roles of employed doctors (n=61)

Variables		What role would you like to play in future?			p-value*	Odds ratio~
Academics		Public health practice	Total			
Current role in job	Academics	24 (48%)	26 (52%)	50	0.013	0.52 (95% CI 0.398-0.679)
	Public health practice	0	6 (100%)	6		
	Both	0	5 (100%)	5		
	Total	24	37	61		

`Data are expressed as n (%).

*p-value calculated using Fisher exact test and a value of <0.05 was considered significant difference.

~OR calculated by excluding third category of current role in job (both practice and teaching). This value shows CM experts in teaching are 0.52 times less likely to choose for academic jobs in future.

Out of a total of 120 doctors surveyed, 68 responded to questionnaire. Among 68 doctors, 61 (91%) were employed at the time of data collection. Majority doctors (50) were in academics, 6 doing public health practice and 5 adjusted in both academics besides practice (refer to table 1). Future preference of jobs was compared between academics and practitioners. All practitioners preferred continuing their practice role, while half of those in academics (26) preferred switching to practical jobs and this difference was statistically significant (p= 0.013).

Doctors were asked if they would like to involve in public health practice in hospitals. Majority of them (61.8%) said they would love to do that, 22 (32.5%) said maybe they can think of it and only 5.9% said they could never think of public health practice in hospitals in view of competition and resistance by established clinical specialties . Detailed analysis revealed that doctors in academics also considered practicing public health in hospital filter or primary clinics. Even those who preferred continuing academic jobs (future academicians) also agreed on taking practical roles in hospital. Out of 24 future academicians, 11 said they would definitely opt for public health practice in hospital, 9 said they might think of it while 4 said they could never think of it.

All doctors were further asked what role they would like to play in hospital from six options given including community diagnosis, IPC, research supervision, hospital management, health education and preventive pediatrics. Doctors selected multiple options. The most commonly selected option was community diagnosis and health planning for catchment population of their hospital. Least selected was preventive pediatrics (refer to Table 2).

Table 2: Preferred role in hospital setting (n=68)

What role would you like to play in hospital setting	Count of responses	Percent (%) of total responses (n=171)	Percent (%) of cases giving that response (n=68)
1. Community diagnosis and health planning for catchment population of hospital	42	24.6	61.8
2. Infection prevention and control measures in hospital	41	24	60.3
3. Designing and supervising clinical trials and guiding researches of clinicians	29	17	42.6
4. Hospital management and leadership	30	17.5	44.1
5. Health education of patients	27	15.8	39.7
6. Preventive Pediatrics	2	1.2	2.9

Challenges in career

Satisfaction of doctors was assessed for their choice of specialization and current role in job. Majority (73.5%) of the 68 doctors were satisfied with their choice of specialization, however satisfaction was lower with their role in job. Almost half of the employed doctors reported being fully satisfied with their role played in job. Satisfaction rate was compared between academicians and practitioners. It was observed that those in practical jobs were more satisfied, however this difference was not statistically significant (p=0.051, Fisher Exact test), refer to Table 3.

We can relate this result with figure 1, showing that majority of academicians wanted to opt for practical roles in future, as it felt more satisfying. Despite this, we see a majority of doctors in academics. We assessed reasons for hesitation in switching to practice in 24 future academicians. Multiple responses were given by a doctor. Majority reported lack of practice opportunities and convenience of academic jobs (refer to Figure 1).

We also took their suggestions for improvement and majority of the suggestions noted were related to opportunities of working with diverse roles (refer to Table 4).

ii**. Survey of job opportunities: 2021 Jobs**

A total of 33 job advertisements were found relevant for Community Medicine Specialists. Each advertisement announced more than one post for public health specialists. Out of these, 28 were government jobs employing specialists for mostly TB program, donor funded projects, primary and secondary healthcare departments, Ministry of health departments and National institutes of health. Remaining 4 advertisements were related to management positions in private hospitals or project managers for NGOs. A total of 67 posts were listed from these advertisements and were categorized according to different skills required. After categorization, it was observed that majority jobs were related to projects (refer to table 4). Majority advertisements invited applicants with post-graduation in public health (Masters and equivalent). Out of a total of 67 positions, only 2 mentioned clearly name of FCPS Community Medicine. These 2 posts were of Executive Director for Health Research institute/ CDC at National Institute of Health and required skills of getting grant and experience as head of an institute or department. Rest all were considered appropriate for MCPS or FCPS Community Medicine but had not mentioned explicitly the name of these degrees and had mentioned all equivalent degrees including Masters in Public Health. These jobs are listed in Table 4.

DISCUSSION

This paper aims to discuss challenges for Community Medicine specialists in their career. There was a 9% rate of unemployment.

Table 3: Satisfaction of doctors in relation with their current role in job (n=61 employed doctors)

Questions compared		Current role in job			Total
		Academics	Public health practice	Doing both	
Are you satisfied with the choice of your specialization	Dissatisfied	1 (2%)	0	0	1 (1.6%)
	Partially satisfied	12 (24%)	1 (16.7%)	0	13 (21.3%)
	Fully Satisfied	37 (74%)	5 (83.3%)	5 (100%)	47 (77%)
Are you satisfied with the role you are playing currently in your profession?	Dissatisfied	5 (10%)	0	0	5 (8.2%)
	Partially satisfied	22 (44%)	0	4 (80%)	26 (42.6%)
	Fully Satisfied	23 (46%)	6 (100%)	1 (20%)	30 (49.2%)
Total		50	6	5	61

Data expressed as n (%).

* p-value was calculated using Fisher exact test and a value <0.05 was considered significant difference.

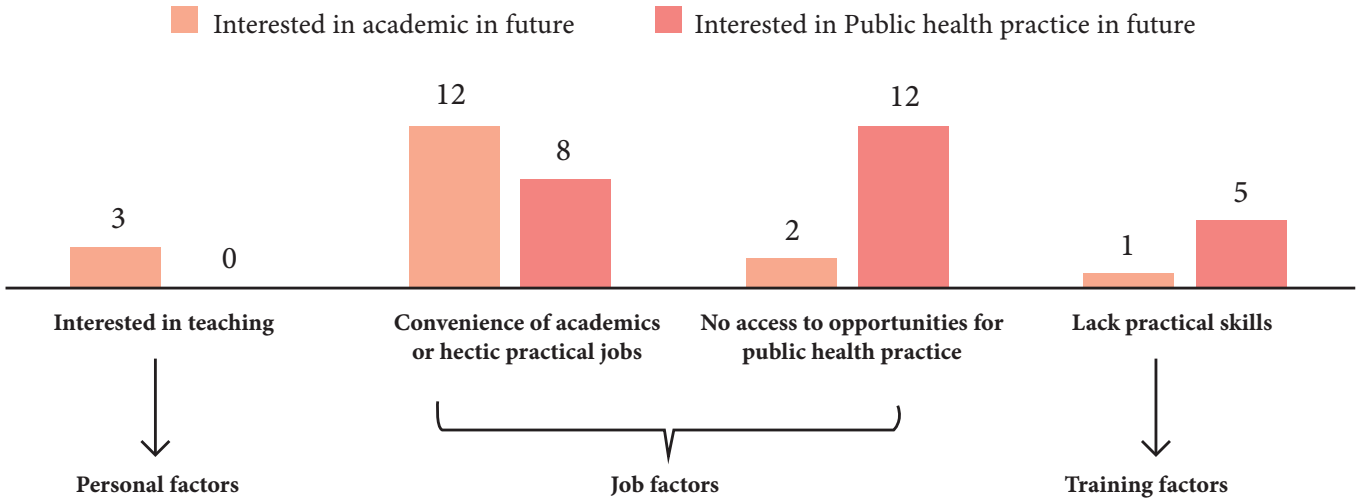

Figure 1: What stops Academicians from switching to public health practice (n= 43 responses)

*Data labels represent number of responses for a bar

Table 4: What improvement can bring you more satisfaction in professional life? (n=56 responses)

Responses	Count	
Ease of acquiring best qualification	4	Training opportunities
Capacity building for practical skills in public health	8	
Recognition of subject as Public health	2	Recognition of specialty
Respect of specialty and decent jobs	8	
Job opportunities for public health practice, preventive clinics	13	Opportunity for diverse roles
Research opportunities and jobs	7	
Role in community	3	
Role in hospitals	2	
Collaboration with other sectors, primary health care, family medicine	3	
Key role for making impact, leadership	6	

Table 5: Categories of jobs according to skills and qualification requirements and number of posts announced against each category

Level	Job title	Skills required	Degrees mentioned	No. of posts
Management Jobs (District/ Province/ Institute)	District Manager, Hospital Administrator, Program Officer, Project Manager	Planning, implementation, M&E of Public health programs, policy making, data analysis	MBBS with MBA, MPH or equivalent	53
Epidemiology & Data Analysis (Project)	Surveillance Officers, Epidemiologist, Research officer	Disease surveillance, data analysis	MPH, FELTP	12
Communication (Project)	Health Communication Officer	Communication, Health education	MPH	2

Those who were employed were mostly satisfied with their choice of specialization, and half of them were fully satisfied with their job roles. Majority academicians wanted to pursue public health practice, however, they reported of some barriers in switching to practice. These were mostly related to lack of opportunities and fear of leaving comfort zone.

A notable finding from our survey was that CM experts were less satisfied with teaching jobs. Reasons maybe that CM is not regarded as an important or interesting subject by students [13]. Another reason maybe that CM experts, having a diversity of skills and being well versed with management and leadership find it difficult to adjust with monotonous or low profile jobs, work environment and ineffective leadership [14]. A research in Ethipia also confirmed the importance of leaders' recognition and development opportunities for public health professionals to stay satisfied in jobs [15].

In our study, half of the academicians in our study wanted to switch to practical jobs in order to feel satisfied where they get an opportunity to make an impact on population health and all academicians agreed to take on any practical role if the opportunity is provided within hospital setting. This should be considered as an opportunity for health system that should be harnessed by redesigning their jobs. The subject of Community Medicine has recently been recognized as a clinical discipline by Pakistan Medical Commission (PMC). It was brought to attention of PMC that Community Medicine specialists acquire skills of public health practice that are beyond teaching, as evident from public health role in pandemic and their services can be extended to clinical settings. A researcher in India published a similar idea of creating a post of Community Medicine specialist at every Community Health Center for monitoring the health-care services. Their role should include identification and prioritization of health needs of community, identification of determinants influencing health and undertaking interventions to improve health [16,17].

CM professionals in our study expressed the need of getting opportunities for diverse roles in their field and capacity building for improving their satisfaction. This reflects the huge burden of unmet professional needs of CM experts [17]. They also expressed that opportunities for better training should be provided, showing that they are aware that current trainings still have gaps. Public and community health training is a debatable issue discussed by many authors globally. This field has seen a lot of evolution in the recent past and competencies keep updating with changing needs with time. Recently, an orientation towards entrepreneurship and systems thinking is being incorporated in trainings globally to satisfy complex needs of future.

A survey of job opportunities revealed no deficiency of potential jobs, but the advertisements mostly didn't clearly invite MCPS or FCPS Community Medicine for applying. This maybe because these degrees are considered suitable for academics as majority of these degree holders have been serving as academicians since past. Also, CM is not given due recognition as its alternative degrees in public health. Some professionals in our survey also stated that this degree should be given the name of public health and be given respect in public health and doctors' community. Similar to this, CM experts in India also feel low esteem and confused due to identity crisis of their field and overlapping with public health and family medicine. Many Indian experts consider public health and CM as same subjects while others project them as separate fields and advocate for retaining clinical tag in name of CM which differentiates them from public health. This ambiguity of scope and roles is a source for confusion and dissatisfaction of experts [18].

CONCLUSION

CM professionals mostly become academicians because employment opportunities for them are mostly teaching based. However, satisfaction of academicians was observed to be low and most experts showed interest in pursuing practical work. However, job opportunities for practical work were not mostly available for CPSP community medicine qualified experts in year 2021.

RECOMMENDATIONS

In order to satisfy professional needs of Community Medicine specialists and helping them in achieving their best potentials, two options can be considered. One option is advocacy for

including FCPS/ MCPS in advertisements of public health jobs. Organizations employing public health specialists should be made aware of the fact that MCPS/ FCPS specialists are trained during training in policy and program planning, implementation and evaluation, management and leadership, disease epidemiology and prevention, statistics and health communication. Restricting their role to teaching impedes their growth and deprives the field of trained professionals. It also shrinks the job market for doctors opting for this specialty. When their skills are not being utilized effectively in medical college jobs, they may feel demoralized and consider changing jobs and opt for NGOs.

Meanwhile, another option to consider is providing opportunities for public health practice within hospital setting by strengthening linkage between Community Medicine department and administration of affiliated hospital. This will be a gateway to make an impact on catchment population of these hospitals. If each medical college starts working on catchment population, disease burden can be largely reduced in Pakistan. A challenge here would be that the activities of these professionals should be designed according to their interests that may vary. Many find interest in planning and management aspects while others are inclined towards interaction with community for disease control and prevention. Whatever role they take, their objectives should be aligned to target the preventive care needs of catchment population to improve their health status. They will be in the best position to guide the hospital on policy matters, having known the characteristics of catchment population. Private hospitals will also benefit by enhanced linkages with the community. This should also be considered part of social responsibility of private organizations. In addition to benefits for community and organization, practice role of CM will make their teaching also more effective and interesting for students. However, a necessary condition for this to implement is to keep staffing strength for Community Medicine department at maximum requirement of PMC so that they are not left at risk of being overburdened. More budgets should be allocated for this department to effectively utilize their skills.

AUTHORS' CONTRIBUTION

Naila Azam	Conception and design, Drafting the Article, Critical revision
Bushra Anwar	Acquisition of data, Analysis and interpretation of data, Drafting the Article

REFERENCES

1. Lomazzi M, Jenkins C, Borisch B. Global public health today: connecting the dots. Glob Health Action. 2016; 9: 10.3402/gha.v9.28772.
2. Olstad DL, Mcintyre L. Reconceptualising precision public health. BMJ Open. 2019; 9(9): e030279.
3. Jarvis T, Scott F, El-Jardali F, Alvarez E. Defining and classifying public health systems: a critical interpretive synthesis. Health Res Policy Syst. 2020; 18: 68.
4. DeHaven MJ, Gimpel NE. Reaching Out to Those in Need: The Case for Community Health Science. J Am Board Fam Med November 2007, 20 (6) 527-32.
5. Chaudhary SS, Nagargoje MM. Community medicine: Desperate times calling for desperate measures. Indian J Public Health 2016;60:64-7.
6. A. M. Kadri. Reforming Community Medicine in Line with the Country's Health Priorities - Let's Make it Relevant and Rational. Indian J Community Med. 2017 Oct-Dec; 42(4):189-92.
7. Nisar N, Billoo N. Community Medicine in Pakistan: Is it still in doldrums? J Pak Med Assoc Dec 2006;56(12):610-1.
8. Densi JL, Potvin L, Rochon J, Fournier P, Gauvin L. On redesigning public health in Québec: lessons learned from the pandemic. Can J Public Health. 2020 Dec; 111(6): 912-20.
9. Ministry of National Services, Regulations & Coordination. Pakistan: Human Resources for Health Vision. 2018-30.
10. Mureed, S., et al. "Transforming Public Health Education in Pakistan: Matching Competencies to Health System Needs." Educ Res J. 2017;7:181-91.
11. Erwin PC, Brownson RC. The Public Health Practitioner of the Future. Am J Public Health. 2017 August; 107(8): 1227–32.
12. Kumar R. Clinical Practice in Community Medicine: Challenges and Opportunities. Indian J Community Med. 2017 Jul-Sep; 42(3): 131-3.
13. Mansuri FA, Mumtaz Y. Reflections of 4th year MBBS students regarding community medicine and their future career choice. Ann Abbasi Shaheed Hosp Karachi Med Dent Coll. Dec 2007;12(2):109-12.
14. Kumar, Ramesh & Ahmed, Jamil & Shaikh, Babar & Hafeez, Rehan & Hafeez, Assad. (2013). Job satisfaction among public health professionals working in public sector: A cross sectional study from Pakistan. Hum Resour Health. 11. 10.1186/1478-4491-11-2.
15. Deriba BK, Sinke SO, Eroso BM, Badacho AS. Health professionals' job satisfaction and associated factors at public health centers in West Ethiopia. Human Resources for Health. 2017;15: 36.
16. Joseph A, Kadri A. IAPSM declaration 2018: Definition, role, scope of community medicine and functions of community medicine specialists. Indian J Community Med.. 2018;43(2):120-1.
17. Erwin PC, Brownson RC. The Public Health Practitioner of the Future. Am J Public Health. 2017 August; 107(8): 1227-32.
18. Krishnan A. Community Medicine in India — Which Way Forward? Indian J Community Med. 2016 Jan-Mar;41(1):5-10.

ORIGINAL ARTICLE

SELF-ASSESSMENT AND PERCEPTION OF HEALTH AND GENETIC HAZARDS OF SMOKING AMONG MEDICAL AND NON-MEDICAL STUDENTS

Gulshan Ara Trali [1], Asifa Majeed [2], Khadija Qamar[3]

[1]Department of Biochemistry, Swat Medical College, Swat

[2]Department of Biochemistry and Molecular Biology, Army Medical College, National University of Medical Sciences, Rawalpindi, Pakistan,

[3]Department of Anatomy, Army Medical College, National University of Medical Sciences, Rawalpindi, Pakistan

ABSTRACT

Objective: To determine medical and non-medical students' self-assessment and perception of smoking's health and genetic risks.

Study Design: Cross sectional descriptive

Place and Duration of Study: Army Medical College, Dec 2017 to June 2018.

Patients and Methods: A total of one hundred medical and non-medical students volunteered to participate. To collect data on the health and genetic hazards of smoking, passive smoking, and self-assessment of smoking, a closed-ended structured questioner was developed and a survey was conducted. SPSS 17 was used to analyze the data, which was then presented in frequency and percentage.

Results: The study included 49 (51.5.1 percent) males and 45 (47.4 percent) females, with a mean age of 19.33±0.709. Participants' educational levels ranged from high school to doctorate. The majority of participants were medical students, with second-year medical students accounting for 69.1 percent of the total. The analysis revealed that there was sufficient recognition of the health risks of smoking and passive smoking. However, there was a lack of knowledge about the genetic risks of smoking. According to self-assessment data, 83 percent were nonsmokers and 17 percent smoked. Furthermore, 62.7 percent of medical students had received formal education on smoking issues and health repercussions.

Conclusion: The participants were cognizant about the significant health harms of smoking. However, limited information regarding genetic hazards reaffirms to enhance knowledge- driven learning of medical and non-medicals students for better results of tobacco cessation measures.

Key words: *Passive smoking, nicotine, Cancer, DNA damage*

How to cite this article: Trali GA, Majeed A, Qamar K. Self-assessment and perception of health and genetic hazards of smoking among medical and non-medical students . HMDJ 2022; 02(01): 21-26

INTRODUCTION

Tobacco smoking is one of the most serious public health issues, killing around 6 million people each year. According to estimates, more than 5 million people are killed by direct tobacco use, while second-hand smoking ends up killing more than 0.6 million people. Previous data predicted that tobacco use would cause more than eight million deaths by 2030 [1]. Tobacco use, particularly among the youth , is linked to an increase in the prevalence of cardiovascular & respiratory diseases and lung cancer. The Framework Convention on Tobacco Control (FCTC), which was established in February 2005, was a substantial attainment in tobacco control. As preventive measures, policies such as higher taxes on tobacco, a ban on smoking at public places, and anti-smoking advertising were implemented [2]. in order to achieve the FCTC goals, the World Health Organization devised monitor tobacco use and prevention policies (MPOWER) in 2008. It included tobacco use monitoring & prevention policies, an educational campaign to protect and assist people in quitting smoking, user counselling, increased taxation, advertising prohibition, and a ban on sponsorship [3]. More than a billion people smoke tobacco, with the majority living in middle and low income countries. Modern smoking techniques are enticing yet harmful ways to attract people. Research has demonstrated that exposure to secondhand smoking causes major ailments such respiratory and cardiovascular conditions, lung cancer, and behavioral problems [4]. Long-term health damage may result from both active and passive exposure to fetuses, newborns, and children [5]. Smoking is practiced in various ways. Shuja et al. found that medical professionals had little knowledge about the dangers of water-pipe smoking on oral health [6]. Smoking behavior and inconsistency are influenced by environmental and genetic factors. In one study, the role of genetic polymorphism in the SLC6A3 gene in smokers and non-smokers was found to have a substantial impact on nonsmoking behavior. Furthermore, alkaloids of tobacco have a detrimental effect on the metabolism of steroid hormones , upregulation of the cytochrome P450

Correspondence to: Dr. Asifa Majeed, Department of Biochemistry and Molecular Biology, Army Medical College, National University of Medical Sciences, Rawalpindi, Pakistan

Email: asifamajeed@amc.numspak.edu.pk

Conflict of Interest: None

Financial Disclosure: None

Received: 26-04-2022

Accepted: 20-07-2022

(CYP) family genes, which catalyzes estradiol hydroxylation and thus endangers fertility in female [7]. In some cohorts, H19-ICR , CYP1A1 gene promoters hypomethylation and SNRPN-ICR gene promoters hypermethylation were linked to male infertility and prostate cancer, where smoking enhanced the risks [8,9]. The genetic behavior is dependent on gene interaction as well as endogenous and exogenous stimuli. Wang et al. discovered a link between CHRN gene polymorphism and smoking cessation in the Chinese population [10]. In general, passive smoking is not considered hazardous to one's health. Likewise, a lack of knowledge about the genetic risks of smoking does not limit tobacco use. As a result, such research will aid in gathering data on the level of knowledge among young adults. Furthermore, such a survey will increase participants' knowledge of various types of smoking hazards, particularly among medical students, which will aid in smoking control.

PATIENTS AND METHODS

It was a cross-sectional descriptive study, carried out at Army Medical College, Rawalpindi, from December 2017 to June 2018. The participants were students from medical and non-medical colleges and universities who were included after their consent. RAOSOFT software calculated sample size using a 10% precision margin and a 90% confidence interval. The sample size was one hundred. The closed-ended structured questionnaire included twenty-three questions with multiple choice answers such as "Strongly Agree," "Agree," "Neutral," "Disagree," "strongly disagree," "I don't know," "Yes," and "No." These questions were subdivided into three sections: perception of genetic risks of smoking, perception of passive smoking, and self-assessment of smoking outcomes. Age, gender, educational information, smoking status, and duration of smoking were also recorded. The data was analyzed and represented in frequencies and percentages using SPSS version 17.

CAPSULE SUMMARY

Medical and non-medical students were well aware of the potential health hazards of smoking. However, scarce information about the genetic hazards calls for an enhanced knowledge-based learning for better outcome of smoking cessation initiatives.

RESULTS

This study included 49 (51.5 %) males and 45 (47.1 %) females, with an average age of 19.33±.709, five participants did not respond. Participants' educational levels ranged from high school to doctorate. The significant proportion of those who took part were medical students. Second-year medical students had the highest participation rate (69.1 % (Figure 1). The first section discussed the genetic risks of smoking. Out of 95 participants, 86 completed all questions. Incomplete data was omitted. The study discovered a high level of knowledge about genetic changes caused by long-term and persistent smoking (65 %). A mixed response was observed regarding human leukocyte antigen suppression by smoking due to genetic susceptibility. Damage to DNA caused by smoking was very not well-understood, with 54 percent responding positively and 44

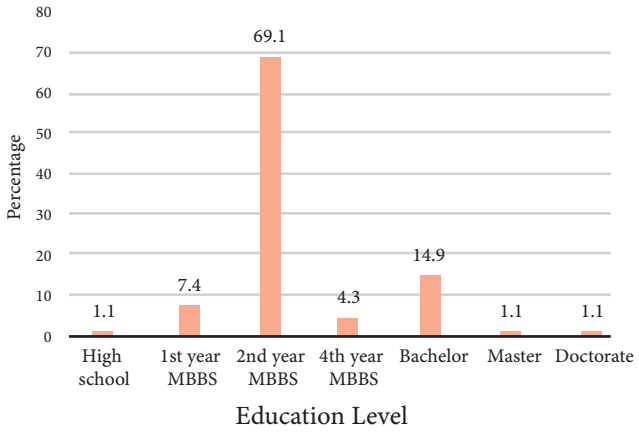

Figure 1 : The educational status of participants

percent responding negatively. A large majority (72 %) agreed that quitting smoking can reduce the risk of cardiovascular disease and cancer. However, participants lacked adequate knowledge of genetics and responded negatively to smoking-induced gene damage (62%) methylation and acetylation (58%). (Table 1).

The second section dealt with passive smoking. Passive smoking is largely ignored by both smokers and nonsmokers. 94 of the 95 participants answered all of the questions. Participants were well aware of the hazards associated with passive smoking. More than 80% of participants agreed that passive smoking, along with all forms of smoking, is harmful to human health. Unexpectedly, the majority of participants, including medical students, were unaware of the risks of smoking to a developing fetus. Participants agreed with a score of 79 percent and 65 percent that room smoking or environmental smoke can turn somebody into a passive smoker, which can be detrimental to human health (Table 2) Data from self-assessment revealed that medical students had received formal education about smoking problems and health repercussions (62.7 percent). Nonsmokers made up 83 percent of the population, while smokers were 17 percent. According to the data, 29 percent had been habitual smokers for 11to15 Years, and 7 percent had been smokers for more than 20 years. Because most of the participants were nonsmokers, smoking outcomes were not measurable (Table 3). However, there was a mixed reaction concerning whether interrupted smoking is more risky than continuous smoking (Table 3).

DISCUSSION

In Pakistan, smoking prevalence among young people is increasing, despite the government implementing the WHO FCTC. As per Pakistan Pediatrics Association, one thousand to twelve hundred high school and college students are into smoking. It's a concerning state of affairs. WHO

Table 1: Perception about genetic hazard of smoking

Questions	Variables	Frequency	Percentage (%)
Smoking for a long time and consistently can alter your genes and your epigenome.	SA	14	16.2
	A	42	48.8
	N	13	15.1
	DA	2	2.3
	IDK	15	17.4
Which element has the most impact on sibling smoking?	Social/Shared environment	67	77.9
	Genetics	8	9.3
	IDK	13	15.1
Do you know that smoking suppresses human leukocyte antigen, increasing genetic susceptibility?	Y	33	38.3
	N	33	38.3
	IDK	20	23.2
DNA damage may come from ambient smoke exposure.	SA	9	10.4
	A	38	44.1
	N	15	17.4
	DA	5	5.8
	SD	1	1.1
	IDK	18	20.9
Persistence in smoking is largely influenced by heritable traits	SA	2	2.3
	A	24	27.9
	N	19	22
	DA	21	24.4
	SD	5	5.8
	IDK	15	17.4
Giving up smoking may reduce your risk of developing cancer, cardiovascular disease, multiple sclerosis and obesity	SA	12	13.9
	A	48	55.8
	N	11	12.7
	DA	4	4.6
	IDK	11	12.7
Smoking can result in gene damage in minutes	SA	7	8.1
	A	18	20.9
	N	18	20.9
	DA	41	47.6
	IDK	2	2.3
Are you familiar with terms methylation and acetylation induced by smoking	✓	36	41.8
	X	50	58.1

SA: Strongly Agree, A: Agree, N: Neutral, DA: Disagree , SD: Strongly Disagree, IDK: I Don't Know, ✓: Yes , X : No

Table 2: Perception regarding passive smoking

Questions	Variables	Frequency	Percentage (%)
Smoke in which form(s) is/are hazardous to human health: Huqqah, Cigarette, Cigar, Industrial Smoke	None	2	2.1
	All forms	77	81.9
	Few of them	8	8.5
	IDK	4	4.3

Active smoking poses the same health risks as passive smoking	SA	43	45.7
	A	33	35.1
	N	5	5.3%
	DA	5	5.3
	SD	2	2.1
	IDK	4	4.3
All age groups are equally impacted by passive smoking	SA	30	31.9
	A	43	45.7
	N	5	5.3
	DA	6	6.3
	IDK	10	10.6
A developing fetus is harmed by passive smoking	SA	8	8.5
	A	31	32.9
	N	3	3.1
	DA	3	3.1
	SD	1	1.1
	IDK	48	51
Presence in a room where other people are smoking makes one a passive smoker	SA	40	42.5
	A	35	37.2
	N	3	3.1
	DA	7	7.4
	SA	1	1.1
	IDK	8	8.5
Living continuously in an environment exposed to industrial smoke makes one a passive smoker	SA	23	24.4
	A	39	41.4
	N	12	12.7
	DA	6	6.3
	IDK	14	14.8

SA: Strongly Agree, A: Agree, N: Neutral, DA: Disagree, SD: Strongly Disagree, IDK: I Don't Know

Table 3: Self-assessment regarding the smoking outcomes

Questions	Variables	Frequency	Percentage (%)
What is/was your preferred manner of consuming nicotine?	Cigarette	18	19.1
	Hookah	5	5.3
	Cigar	2	2.1
	E-cigarette	1	1.1%
	Chewing tobacco	1	1.1%
	Other	8	8.5
	None	59	62.8
Smoking enhances one's attractiveness.	✓	15	17.4
	X	52	60
	N	23	26.7
Have you had any formal education about the health consequences of exposure to smoke?	✓	54	62.7
	X	25	29
	N	7	8.1

Do you/have you ever considered yourself addicted to cigarettes?	✓	7	8.1
	X	66	76.7
	N	13	15.1
Has anyone ever had concerns about your smoking habits?	✓	24	27.9
	X	46	53.4
	N	16	18.6
Have you ever attempted to quit cigarettes?	✓	13	15.1%
	X	63	73.2
	N	10	11
Have you ever felt pressured to smoke by your peers?	✓	18	20.9
	X	66	76.7
	N	2	2.3
Have you ever suffered from a smoke-related health issue?	X	67	77.9
	N	16	18.6
	✓	3	3.4
Interrupted smoking is dangerous than continuous smoking	SA	2	2.3
	A	17	19.7
	N	23	26.7
	DA	21	24.4
	SD	2	2.3
	IDK	21	24.4

SA: Strongly Agree, A: Agree, N: Neutral, DA: Disagree , SD: Strongly Disagree, IDK: I Don't Know, ✓: Yes , X : No

has recommended prohibition of tobacco advertisement & sponsorship, and an increased tobacco taxation. A research conducted in Jeddah, Saudi Arabia, revealed that medical students had insufficient knowledge about the health risks of second-hand smoking and emphasized the need to modify medical curricula for better academic performance and smoking cessation [11]. However, the results of this survey were encouraging. Our participants were well-versed in the effects of smoking on human health, including passive smoking, which is a major public health concern.

The current study found that the majority of participants were unaware with genetics and had limited knowledge of the genetic risks of smoking and genetic material damage. A number of studies have reported the recognition of smoking markers linked to DNA methylation [12, 13]. As a result, medical graduates would benefit from adequate knowledge of the genetic consequences. The application of such understanding in clinics will assist in the control of smoking and its adverse health outcomes. A study found a high prevalence of smoking among university students in Karachi, with a particularly concerning trend among female students. Some smokers preferred to quit smoking by enrolling in some rehabilitation center [14]. Moreover, we found a low %age of smokers, knowledge about various types of smoking surroundings, and causes of smoking. Smokers also knew the dangers of smoking and attempted to quit. Tobacco cessation in medical students will promote their participation in smoking prevention campaigns also lowering smoking-related mortality and morbidity [15].

The formal training of medical students in smoking cessation and quitting was a positive finding. Education about the dangers of all types of smoking and how to quit is an effective intervention. It should be done clinically on a regular basis to avoid heart disease, cancers, fetal abnormalities & fetal mortality.

CONCLUSION

The participants were well aware of the potential health risks associated with smoking in all forms. However, a lack of knowledge about genetic risks reinforces the need to improve knowledge-based learning among medical and non-medical students in order to improve the outcomes of smoking cessation initiatives.

LIMITATIONS

Single center study and small sample size. Small sample size was due to quitting the participation.

RECOMMENDATIONS

Multicenter study will help to gather comprehensive data. Educational and awareness programs enforce to limit the smoking and tobacco use in our population. Efforts are required to motivate the doctors to take active part in smoking cessation support.

ACKNOWLEDGEMENT

We thank all participants for their cooperation.

AUTHORS' CONTRIBUTION

Gulshan Ara Trali	Acquisition of data, Drafting the Article
Asifa Majeed	Conception and design, Analysis and interpretation of data, Critical revision
Khadija Qamar	Analysis and interpretation of data

REFERENCES

1. Oberg M, Jaakkola MS, Woodward A, Peruga A, Pruss-Ustun A. Worldwide burden of disease from exposure to second-hand smoke: a retrospective analysis of data from 192 countries. Lancet. 2011;377:139-46.
2. World Health Organization. Director-General's Office. Communications Office. WHO Framework Convention on tobacco control : 100th ratification of international health treaty : Director-General' s statement. Geneva: World Health Organization; 2005. 1 p.
3. World Health Organization. WHO Report on the Global Tobacco Epidemic, 2008: the MPOWER package. Geneva: World Health Organization; 2008. 329 p.
4. Faught BE, Flouris AD, Cairney J. Epidemiological evidence associating secondhand smoke exposure with cardiovascular disease. Inflammation & Allergy Drug Targets. 2009;8:321-7.
5. Fantuzzi G, Vaccaro V, Aggazzotti G, Righi E, Kanitz S, Barbone F, et al. Exposure to active and passive smoking during pregnancy and severe small for gestational age at term. The J. Matern-Fetal Neonatal Med. 2008;21:643-7.
6. Shuja S, Hussain A, Malik S, Rizwan T, Amin M, Choudhry Z. Perceptions Of Health Professional Students Regarding Waterpipe Smoking And Its Effects On Oral Health. J Ayub Med Coll Abottabad. 2018;30:90-3.
7. Marom-Haham L, Shulman A. Cigarette smoking and hormones. Curr Opin Obstet Gynecol. 2016;28:230-5.
8. Dong H, Wang Y, Zou Z, Chen L, Shen C, Xu S, et al. Abnormal Methylation of Imprinted Genes and Cigarette Smoking: Assessment of Their Association With the Risk of Male Infertility. Reproductive Science. 2017;24:114-23.
9. Mitsui Y, Chang I, Kato T, Hashimoto Y, Yamamura S, Fukuhara S, et al. Functional role and tobacco smoking effects on methylation of CYP1A1 gene in prostate cancer. Oncotarget. 2016;7:49107-21.
10. Wang Q, Li S, Pan L, Li H, Yang X, Jiang F, et al. Association between variants in nicotinic acetylcholine receptor genes and smoking cessation in a Chinese rural population. Am J Addict. 2016;25:297-300.
11. Alzahrani SH. Levels and factors of knowledge about the related health risks of exposure to secondhand smoke among medical students: A cross-sectional study in Jeddah, Saudi Arabia. J Tob Induc Dis. 2020;18:1-14.
12. Ambatipudi S, Cuenin C, Hernandez-Vargas H, Ghantous A, Le Calvez-Kelm F, Kaaks R, et al. Tobacco smoking-associated genome-wide DNA methylation changes in the EPIC study. Epigenomics. 2016;8:599-618.
13. Markunas CA, Xu Z, Harlid S, Wade PA, Lie RT, Taylor JA, et al. Identification of DNA methylation changes in newborns related to maternal smoking during pregnancy. Environ Health Perspect. 2014;122:1147-53.
14. Yaseen MO, Saif A, Khan TM, Suleiman AK. A survey of smoking habits among university students and its susceptibility among various diseases. Arch Pharm Pract. 2020;11:32-42.
15. Sychareun V, Hansana V, Choummanivong M, Nathavong S, Chaleunvong K, Durham J. Cross-sectional survey: smoking among medical, pharmacy, dental and nursing students, University of Health Sciences, Lao PDR. British Medical Journal Open. 2013;3:e003042

ORIGINAL ARTICLE

PERCEPTION OF CLINICAL STRUGGLES FACED BY LEFT HANDED DENTAL STUDENTS AND PRACTITIONERS OF DENTAL COLLEGES OF TWIN CITIES OF PAKISTAN DURING ROUTINE DENTAL PRACTICE

Aysha Khitab[1], Amna Abid[2], Muhammad Jamal[3], Abeer Abdul Jabbar[4], Saniya Sohail[5], Muhammad Zeeshan Baig[6]

[1,2,3,4,5] Islamabad Medical and Dental College, Islamabad.

[6] Department of Oral and Maxillofacial Surgery, Frontier Medical and Dental College Abottabad.

ABSTRACT

Objective: To get the perception of clinical struggles faced by left handed dental students and practitioners of dental colleges of twin cities of Pakistan during routine dental practice.

Study Design: Cross-sectional Survey

Place and Duration of Study: Six dental colleges of Twin cities of Pakistan from September 2017 to February 2018.

Material and Methods: Study participants included third year and final year students, postgraduate trainee and senior faculty. The snowballing strategy used by each college assisted in enlisting a large number of left-handed students. Questionnaires from a prior study on a relevant issue were sent to the study population and completed voluntarily. Statistical analysis for frequency of clinical difficulties was computed using SPSS software version 21.

Results: Out of 53 participants, 24.5% (13) were male and 75.5% (40) were female. The participants' ages ranged from 21 to 39, with a mean of 26.53. Around 24.5 percent of left-handed dentists had no trouble performing dental work, whereas the majority, 62.26 percent, had issues. The participants' ages ranged from 21 to 39 years, with a mean of 26.53 years. Around 24.5 percent of left-handed dentists had no trouble performing dental work, whereas the majority, 62.26 percent, had issues. Two third of the participants felt discriminated when working with left hand and felt that their performance could be improved had they been right handed. About 80% felt they were at higher risk of developing musculoskeletal risk for back and neck region using armamentarium designed for their right handed colleagues compared to the dentists working with their right hands using right sided dental units.

Conclusion: Our findings show that a considerable percentage of left-handed dentists have difficulty performing ordinary dental work, as well as having right-handed instructors, the majority of whom are students and house officers. They were feeling left out in the environment and equipment that is only suitable for right handed dentists without having much help from seniors regarding their issues.

Key words: *Dentist left handed, perception.*

How to cite this article: Khitab A, Abid A, Jamal M, Jabbar AA, Sohail S, Baig MZ. Perception of clinical struggles faced by left handed dental students and practitioners of dental colleges of twin cities of Pakistan during routine dental practice. HMDJ 2022; 02(01): 27-32

INTRODUCTION

Laterality expresses the disparity in the roles of the human cerebral hemispheres. Laterality expresses the disparity in the roles of the human cerebral hemispheres [1]. Both hemispheres work equally at birth, but as neurological development increases, one begins to take precedence. This training can run anywhere from five to six years, and by the end of it, the person will have developed a distinct laterality [2].

Correspondence to: Dr. Amna Abid BDS, Postal Address: House No 181, Street # 6, E-11/1, Islamabad.

Email: amna.13@iideas.edu.pk

Conflict of Interest: None
Financial Disclosure: None

Received: 03-04-2022
Accepted: 08-06-2022

The reason why 90 percent of the population is right-handed and the population that is faster with their left hand is only about 10 to 12 percent is unknown, but other explanations have been proposed, including genetic variables and pre- and post-natal situations. The reason why 90 percent of the population is right-handed and the population that is faster with their left hand is only about 10 to 12 percent is unknown, but other explanations have been proposed, including genetic variables and pre- and post-natal situations.

It is a real problem for left handed people to live in right handed world. Handedness becomes important for dental practitioner regarding his training position. Regrettably, almost all dental tutoring and practices in dental schools are designed for right handed students. For that reason, left handed students study at right sided chairs in most institutes in the beginning of their education [3].

To execute a clinical process in the dental sector, a high level of hand dexterity is required, as well as mental pictures [4].The majority of dental instruments are universal, however the general construction and design are suited to right-handed users. As a result, the left-handed player must adapt to various positions, resulting in a loss in performance and increased discomfort [5].

Many dental offices lack dental chairs made specifically for left-handed people. Nonetheless, there are manufacturers who produce left-hand dentist equipment that is identical to right-hand equipment. But their popularity, availability and usage is relatively less [6].

There is not much online literature and no text book that narrates advice for left handers [7]. Dentistry is a challenging field demanding attention, precision and expertise[8]. The structure and position of the dentition, position of patient and dentist as well as the selection of the proper angulations of the armamentarium, all play a role in effective dental therapy. Normally Dental chairs with the right side are utilized in clinics and hospital sittings. Conversely, it cannot be said that all dentists are right handed. Although there is no evidence in the literature that left-handed dentistry practitioners perform worse on right-sided dental units, it cannot be denied that the overall performance of left-handed practitioners could be improved by allowing them to work from the patient's left side [9,10].

In Brazil they worked on the difficulties experienced by left-handed dentists in clinical practice and found that lefthanders were having more musculoskeletal problems in comparison with the right handed dentists [11]. There is a lot of working going on about work related musculoskeletal disorders in dentists and their being absent from work because of the reason [12].

The purpose of this research is to create awareness through recognition of clinical troubles encountered by left handed dental students and dental practitioners. Results of this study will help to orient left handed dentists to achieve best performance with minimum discomfort.

There is less work in literature regarding the technical hitches experienced by left handed dental students and practitioners and it cannot be denied that overall average performance can be improved by providing them their required facilities.

CAPSULE SUMMARY

Following problems were faced by the left handed dentists during their clinical practice:

- Almost all lacked proper guidance from their right handed instructors.
- Working with equipment designed for right handed dentists made the majority of them feel difficulties in performing their routine dental work.
- Majority felt left out and discriminated and thought that they were at a higher risk for developing musculoskeletal disorders.

The authors recommend:

- Procurement of Ambidextrous dental units
- Pairing of left handed dental surgeons with left handed dental technicians.
- Charting of an effective plan by senior practitioners for overcoming this obstacle and achieving adaptability with limited resources.

MATERIAL AND METHODS

A cross-sectional study was carried out in six dental colleges (Islamabad Medical & Dental College, Islamic International Medical & Dental College, Pakistan Institute of Medical Sciences, Margalla Institute of Health Sciences, Armed Force Institute of Dentistry, Rawal Medical & Dental College) of Twin cities of Pakistan for six months (September 2017 to February 2018). Study participants included third year and final year students, postgraduate trainee and senior faculty while those who were not willing to participate were excluded from the study. A network of informants was identified as part of the study population, which led to a cascading process. This snowballing strategy, which was used in each college, managed to recruit a large number of left-handed students.

A questionnaire was chosen from a prior study on a related topic. A few changes were made to a few questionnaires. After receiving feedback from concerned specialists, the Questionnaire was content and face validated before being sent to study participants, who willingly completed it. The survey consisted of seven questions. Any questionnaires that were not completed were removed from the study, and strict confidentiality for all responses was emphasized.

The outcome variable was frequency of clinical difficulties faced by dental practitioners and students working in clinical

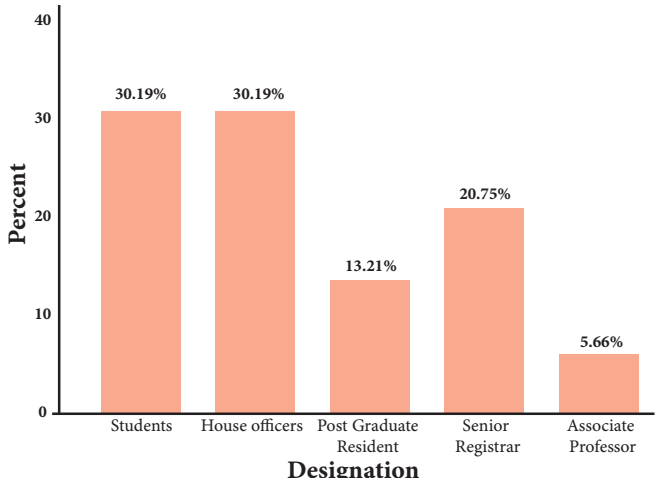

Figure 1: Designation of Left Handed Dentist

departments. All the data was entered in statistical package for social sciences (SPSS) version 21.0.The qualitative variables

Problems Faced		Male		Female		Total
1.	Do you have a problem with the right-handed instructors or supervisors?	Yes	8	Yes	25	53
		Sometimes	1	Sometimes	6	
		No	4	No	9	
2.	Do you have a problem in being left-handed to do the required dental work?	Yes	5	Yes	27	
		Sometimes	7	Sometimes	7	
		No	1	No	6	
3.	Have you ever felt discriminated for being left-handed during your dental course?	Yes	2	Yes	11	
		Sometimes	4	Sometimes	14	
		No	7	No	15	
4.	Do any of your patients complain if you are working with a left-sided chair?	Yes	2	Yes	8	
		Sometimes	5	Sometimes	10	
		No	6	No	22	
5.	Do any of your patients complain if you are working with a left hand?	Yes	3	Yes	6	
		Sometimes	1	Sometimes	6	
		No	9	No	28	
6.	Have you ever tried to tell your instructor the difficulties you face being a left handed student?	Yes	3	Yes	16	
		Sometimes	7	Sometimes	18	
		No	3	No	6	
7.	Did the instructor do anything to help you?	Yes	4	Yes	10	
		Sometimes	5	Sometimes	20	
		No	4	No	10	

Table 1: Problems Faced by Left Handed Dentists

in data that is gender and outcome variable will be presented as frequency and percentages. The age of the participants will be provided quantitatively as a mean with standard deviation. Figures and tables will be used to present the findings.

RESULTS

Total 53 participants were found to be left handed in six dental colleges in academic year 2017-18 out of which 24.5%(13) were male and 75.5%(40) were female. Age stretched from 21 to 39 with a mean of 26.53. Relatively larger numbers of left handers emerged among students and house officers as shown in Figure 1.

According to current study, 62.26% of the left handed dentists mentioned they had problems with right handed instructors and supervisors. As validated in Table 1, a substantial percentage of left handers (60.30%) had difficulty doing the essential dental work efficiently as compared to right handers.

Working on a right-sided chair, according to 62.26 percent of the 53 dentists we polled, lowers the quality of care compared to working on a left-sided chair. Even more individuals, 69.81 percent, stated that their clinical performance would be significantly improved if they were right-handed. All of the respondents reported musculoskeletal issues as a result of using the services of right-handed dentists, with 81.13 percent believing that left-handed dentists are more likely to develop back and neck complications, as shown in Table 2. Patients were aware that the operators were left-handed, but they were unconcerned about the dentist's favored hand.

DISCUSSION

The existent study explored left handed clinical dentists perceptions about several characteristics related to handedness in dentistry. As per the outputs of this study, 53 participants turned out to be left handed in 6 colleges, out of which 13 (24%) were male and 40(75%) were female, in comparison to the study conducted by Leila Mostawe et al in the year 2019, where 47.8% participants were males and 52% were females [12] and a similar study in KSA by Iffat M Ahmad showed 65% female left handers whereas 46% male participants[11] Furthermore, contrasting results were seen in the study by AL-Johnny in which 57% were males and 43% were females [9].

Current study revealed that about 26.4% of the participants did not receive any instructions or help regarding the adaptability to

Dental Practice Perceptions		Male		Female		Total
1.	Do you think the quality of care is depressed by working on a right-sided chair?	Yes	8	Yes	25	53
		Uncertain	3	Uncertain	8	
		No	2	No	7	
2.	Do you believe that your performance would be better if you were right-handed?	Yes	9	Yes	28	
		Uncertain	2	uncertain	4	
		No	2	No	8	
3.	Do you believe that a left-handed dentist is at a higher risk of developing musculoskeletal complications related to					
A	Hands	Yes	3	Yes	6	
		Uncertain	1	Uncertain	10	
		No	9	No	24	
B	Shoulder	Yes	4	Yes	12	
		Uncertain	3	Uncertain	12	
		No	6	No	16	
C	Neck	Yes	9	Yes	34	
		Uncertain	1	Uncertain	4	
		No	3	No	2	
D	Back	Yes	12	Yes	31	
		Uncertain	0	Uncertain	4	
		No	1	No	5	
E	Legs	Yes	2	Yes	4	
		Uncertain	2	Uncertain	2	
		No	9	No	34	
F	Feet	Yes	4	Yes	0	
		Uncertain	1	Uncertain	4	
		No	8	No	36	

Table 2: Dental Practice Perceptions of Left Handed Dentists

the right handed dental practice which is similar to the results indicated by that the majority of the participants (around 43.5%) did not receive guidance from their supervisors during training [12]. Mohamed S. Zaghloul also pointed that majority of left handed practitioners were not given any programmed courses for their handedness nor were they being given any practical demonstrations. Also, they were certain that by providing such courses, stress could be reduced improving overall efficiency of practitioners [13].

Present study shows that around 80% of the participants felt they were at higher risk of developing musculoskeletal conditions. According to a study by E.M.A Silva et al, the majority of students did not have musculoskeletal complaints prior to enrollment in odontology school [1]. Another study done in New Zealand showed results of 83.3% left handed dental students having musculoskeletal pain after practicing dentistry[14]. 2/3rd of the participants felt discriminated working with the right handed dentists, while the results from a study conducted by Masud Y and Ajmal MA in 2012 similarly revealed the participants were subjected to many forms of prejudice, each of which had a negative impact on their psychological and social lives [2]. In disparity to 33.6% of the dental undergraduates in Saudi Arabia [9], more than 80% of the participants in this survey believed that a left-handed dentist utilizing right-handed dentist armamentarium is more likely to develop musculoskeletal disorders in the shoulder, neck, and back. Same results were seen in the study in India conducted in 2016 [5].

In this research, 24.5% of left handed practitioners did not experience difficulty in carrying out the dental work while 62% did struggle. The findings matched those of a study in which left-handed surgeons found working with right-handed colleagues in the clinic or operating room to be inconvenient. The left-handed practitioners also experienced tension, weariness, and bodily pain, according to the study. In other investigations, it

Future Perceptions		Male	Female		Total
1.	Would you prefer to introduce yourself as a left-handed dentist in your Curriculum Vitae?	Yes	11	Yes	19	53
		Not Sure	2	Not Sure	17	
		No	0	No	4	
2.	In future, will you correct the habit of your children if they show the habit of using their left hand?	Yes	1	Yes	6	
		Not Sure	5	Not Sure	12	
		No	7	No	22	
3.	Do you think being a left-handed dentist will affect your dental assistant's ability or convenience to work?	Yes	3	Yes	3	
		Not Sure	1	Not Sure	3	
		No	9	No	34	

Table 3: Future Perceptions of Left Handed Dentists

was found that odontology students had a larger percentage of unpleasant symptoms in the lumber and cervical regions [1].

Somewhat similar results of a cross sectional study where 18% of the survey participants reported they were not having any problems with being left handed to do the required dental work, was carried by Iffat in Saudi Arabia [11].

About 18% of this research participants claimed that their patients noticed and complained about them working with their left hands while the majority reported the patients being fine or not noticing their handedness at all. These results well accorded with the study of Chris Lee in Australia where majority of respondents mentioned the patients barely notices the dentist using left hand and usually never has a problem with the operators hand of choice [15].

CONCLUSION

In a nutshell, the study displays that bulk of the left handed dentist met problems in executing their routine dental work and also having right handed instructor. Reasonably large number emerged among students and house officers. About two third of the participants felt discriminated when working with left hand and 80% felt higher risk of musculoskeletal problems.

RECOMMENDATIONS

The fast growing world of medical technology facilities various differently abled individuals hence it is imperative that a left handed dental practitioner gets a chance too. Specific dental equipment can be designed as per the suitability and convenience of the practitioner. Ambidextrous dental units can be manufactured and stocked at the training colleges too. The left handed dental practitioners can possibly benefit too from a council dedicated to the wellbeing of the left handed practitioners. The dental colleges can take note of the number of left handed practitioners at the time of induction and plan ahead for their special equipment. Left handed practitioner can be paired with left handed assistants to achieve the effective and unhindered 4 handed dentistry. Furthermore, senior practitioners should devise an effective plan to impart knowledge to the junior practitioner as to how one can overcome the obstacle and achieve adaptability in the places of limited resources.

ACKNOWLEDGEMENTS

We are thankful to Associate Professor Dr. Khalid Mahmood Siddiqi, Dr. Abdul Manan Shahid and Assistant Professor Dr. Muhammad Mudassar Saleem, Oral & Maxillofacial Department (IMDC). They spared their precious time in helping us write this publication.

AUTHORS' CONTRIBUTION

Ayesha Khitab	Acquisition of data
Amna Abid	Analysis and interpretation of data, Drafting the Article
Muhammad Jamal	Drafting the Article, Critical revision, Proof reading
Abeer Abdul Jabbar	Acquisition of data
Saniya Sohail	Drafting the Article
Muhammad Zeeshan Baig	Conception and design

REFERENCES

1. Silva EM, Cruz ID, Costa ID, de Lima KC, de Araujo Souza GC, Fuscella MA, et al. Left-handed students and clinical practice in dentistry: Adaptations, difficulties and realities experienced in the academic environment. Open J Prev Med: 2016; 6:247-59.

2. Masud Y, Ajmal MA. Left-handed people in a right-handed world: A phenomenological study. Pak J Soci Clin Psycho.2012; 10:49-60.
3. Odabas B, Dildes N, Genc C, Veli I, Ozer T. Handedness of orthodontists and its impact on practice. Cumhuriyet Dent J. 2012; 15:229-34.
4. Silva MA, Souza-Rodrigues RD, Lashowisk K, Oda M, Vieira GF. Left-handed dental students. Braz Dent Sci. 2012; 15:36-40.
5. Kapoor S, Puranik MP, Uma SR. Practice perspectives of left-handed clinical dental students in India. J Clin Diagn Res. 2016; 10:79-83.
6. Gutwinski S, Löscher A, Mahler L, Kalbitzer J, Heinz A, Bermpohl F. Understanding left-handedness. Dtsch Ärztebl Int. 2011; 108:849-53.
7. Adusumilli PS, Kell C, Chang JH, Tuorto S, Leitman IM. Left-handed surgeons: are they left out? Curr surg. 2004; 61:587-91.
8. Tezel A, Kavrut F, Tezel A, Kara C, Demir T, Kavrut R. Musculoskeletal disorders in left-and right-handed Turkish dental students. Int J neurosci. 2005; 115:255-66.
9. Al-Johany SS. A survey of left-handed dental students and interns in Saudi Arabia. J Dent Educ. 2013; 77:105-12.
10. Kaya MD, Orbak R. Performance of left-handed dental students is improved when working from the left side of the patient. Int J Indus Ergon. 2004; 33:387-93.
11. Ahmad IM, Alshehri RA, Albalaawi RN, Bendagji RA, Khalaf SM, Khalid s et al.Clinical Difficulties among Left Handed Dentists, Dental Students and Interns-A Cross-Sectional Survey in Saudi Arabia. Int J Med Res Health Sci. 2020; 9(9): 9-16.
12. Azim S, Mostawe I, Darwish A. Being a left- handed dentist boon/flaw? A survey in dental colleges around UAE.J Med Case Rep Case Rev 2019; 6:282-95.
13. Zaghloul MS et al. A Qualitative assessment of the impact of handedness among left-handed surgeons in Saudi Arabia, Laterality, 23; 1:39-50.
14. Lawati IA, Maskari HA, Ma S. "I am a lefty in a right-handed world": Qualitative analysis of clinical learning experience of left- handed undergraduate dental students. Euro J Dent Edu. 2019; 23: 316-22.
15. Lee C, Pateman K and Lalloo R. Experiences of Left-Handed Dental Students in Australia (version 1). Med Ed Publish 2018; 7:83.

ORIGINAL ARTICLE

RETROSPECTIVE ANALYSIS OF OUTCOME IN NON-MUSCLE INVASIVE BLADDER CANCER PATIENTS, TREATED WITH BCG IN A SINGLE CENTRE

Abdus Samad Syed[1], Fauzia Abdus Samad[2], Sameed Hussain[3]

[1,3] Consultant Oncologist, Combined Military Hospital, Rawalpindi, [2]Consultant Oncologist, Fauji Foundation Hospital Rawalpindi

ABSTRACT

Objective: To report progression, recurrence and survival in patients having non-muscle invasive transitional cell carcinoma (TCC) of the urinary bladder treated with bacillus Calmette-Guérin (BCG) after long term follow-up.

Study Design: Descriptive case series

Place and Duration of Study: The study was carried out in Department of Oncology, CMH Rawalpindi between June 2003 and May 2013.

Patients and Methods: The bladder tumours of 228 individuals with non-muscle invasive bladder TCC were completely removed with transurethral resection (TURBT). The South-west Oncology Group/Medical Research Council (SWOG/MRC) Protocol was then used for intra-vesical instillation of mitomycin or BCG. Analysis of recurrence, progression, and disease-related survival was carried out.

Results: 138 individuals were assessed, with a median age of 60 years, the remaining 90 patients being lost to follow-up. A total of 138 males and females got evaluated, with a median age 60 yrs (32–75 yrs). T1 low grade disease affected 88 people, and T1 high grade disease affected 43 cases while seven patients had pTa disease. So far, 104 patients (75%) have had no recurrences, 20 patients (14.5%) have persistent illness, and 14 patients (10%) have a progressive disease. The most prevalent side effects of treatment were cystitis, haematuria, and urinary infections. The mean duration of follow-up is 82.5 months (23–144 months).

Conclusion: For intermediate and high-risk non-muscle invasive bladder cancer, BCG is still the primary treatment, with very low risk of recurrence or progression.

Key words: *Non-muscle invasive bladder cancer Intra-vesical BCG, Mitomycin*

How to cite this article: Syed AS, Samad FA, Hussain S. Retrospective analysis of outcome in non-muscle invasive bladder cancer patients, treated with BCG in a single centre. HMDJ 2022; 02(01): 33-36

INTRODUCTION

Urinary bladder carcinoma is the world's sixth most prevalent cancer. Non-muscle invasive bladder cancer accounts for over 70% of occurrences, worldwide [1]. At the Combined Military Hospital Rawalpindi's Department of Oncology, carcinoma of urinary bladder has remained one of the top ten malignancies throughout the last decade. Around 20% of these cases are in the non-muscle invasive (NMI) stage. This indicates that the disease is either mucosa- or submucosa-limited (Stage Ta – Tis or T1 respectively).

If these tumours are left alone following transurethral resection of bladder tumours (TURBT), they have a 60–80% recurrence rate [2,3]. Tumours are most likely to return in the first year after TURBT, and in the same stage and grade as before. These tumours can be recurrences, such as after inadequate resection or as a result of implantation, or they might be new occurrences. Because NMI bladder cancer is such a diverse disease, it's impossible to forecast who will experience a recurrence. Risk assessment can be done using prognostic criteria such stage, grade, multi-focality, tumour size, previous bladder tumours, and positive biopsies. Patients with pTa tumours seldom have recurrences or develop to advanced stages of the disease[4]. Mitomycin's intravesical instillation reduces the rate of recurrence in these patients.

About 12 to 13.3% patients with a non-muscle invasive bladder tumour develop invasive illness after five years [2,5]. Many investigations conducted since the mid-1970s have shown that intravesical chemotherapy can significantly postpone the recurrence of superficial bladder cancer but cannot completely stop it. This holds true for all agents and comparative studies that assessed the efficacy of intravesical chemotherapy after TURBT to TUR alone [6].

Patients having a non-muscle invasive transitional cell carcinoma (TCC) of the urinary bladder, treated with Mitomycin or bacillus Calmette-Guérin (BCG), were followed up in order to

Correspondence to: Dr. Fauzia Abdus Samad, Consultant Oncologist, Combined Military Hospital, Rawalpindi

Email: fasamad6@gmail.com

Conflict of Interest: None

Financial Disclosure: None

Received: 12-05-2022

Accepted: 08-06-2022

see progression, recurrence and survival in this study. Recurrence is described as a tumour that has returned to the same location where it was removed before by TURBT, whereas progressive means that the lesion was not entirely removed in the prior TURBT and has grown in size since then.

CAPSULE SUMMARY

The authors aimed at comparing their results with international data in patients of non-muscle invasive bladder carcinoma treated with BCG. The recurrence free survival was more than 70% in this study, which matches the western population. Hence intravesical BCG induction and maintenance treatment remains standard care in non-muscle invasive bladder carcinoma in our population also.

PATIENTS AND METHODS

All patients had TURBT at the Armed Forces Institute of Urology (AFIU) in Rawalpindi, and histopathology reports were obtained from the Armed Forces Institute of Pathology (AFIP) in Rawalpindi. The study included males and females aged 18 years with a histological diagnosis of TCC urinary bladder, histological High Risk stage I disease (High grade, invasion of lamina propria, presence of CIS, recurrent intermediate risk disease), and an Eastern Cooperative Oncology Group (ECOG) performance status (PS) of 0 – 2. Those with coexisting other cancers or prior bladder cancer treatment were excluded. A detailed history, general physical examination, systemic examination, blood complete picture, urea, creatinine, chest x-rays, abdomino-pelvic ultrasound, cystoscopy, and urine cytology were all part of the basic workup. Patients who underwent TURBT were given BCG as they were in high risk group as per the SWOG/MRC protocol[8]. In this protocol, patients receive induction therapy, which consists of six weekly BCG instillations. After 4 weeks, a check cystoscopy is performed. Maintenance BCG, consisting of three weekly instillations, is administered two weeks after the check cystoscopy. Maintenance doses are given on a quarterly basis during the first year. During the second and third years, BCG is administered at six-month intervals. A check cystoscopy is performed on each occasion. Treatment is continued only if cystoscopy and histopathology of random biopsies show no disease. The primary tool for assessing response was cystoscopy. The WHO common toxicity criteria version 2 were used to assess toxicity [9].

Table 1: Stratification of risk groups [7]

Risk group stratification	Characteristics
Low-risk tumours	Primary, solitary, TaG1 (PUNLMP, LG*), < 3 cm, no CIS
Interme-diate-risk tumours	All tumours not defined in the two adjacent categories (between the category of low- and high risk).
High-risk tumours	Any of the following: • T1 tumour • G3 (HG**) tumour • carcinoma in situ (CIS) • Multiple, recurrent and large (> 3 cm) TaG1G2 /LG tumours (all features must be present)*.
	Subgroup of highest risk tumours:
	T1G3/HG associated with concurrent blad-der CIS, multiple- and/or largeT1G3/HG and/or recurrent T1G3/HG,T1G3/HG with CIS in the prostatic urethra, some forms of variant histology of urothelial carcinoma, lymphovascular invasion.

**Low grade: a mixture of G1 & G2*
*** High grade: a mixture of some G2 & all G3*

DATA ANALYSIS

The data was analysed using the statistical software for social sciences (SPSS) version 24.0.The median of age and follow-up period were calculated. Gender, smoking history, grade, stage of disease, outcome, and side effects of treatment were all calculated as percentages.

RESULTS

138 of the 228 patients who received treatment in the department during this decade were evaluable, while the remaining 90 were lost to follow-up. One hundred eight males and thirty females

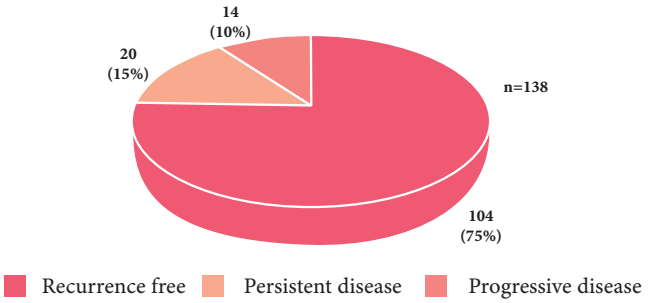

Figure 1: Recurrence–free rates of patients to intravesical BCG at 5 years

were evaluated, with a median age of 60 years (range 32 – 75 years). Seven patients had pTa disease, with four having low grade disease and three having high grade disease. T1 low grade disease affected 88 patients, while T1 high grade disease affected 43. So far, 104 patients (75%) have had no recurrences, 20 patients (14.5%) have had persistent disease, and 14 patients (10%) have had progressive disease (Figure 1). The mean length of follow-up is 82.5 months (range: 23–144 months).

The most common treatment-related side effects were cystitis, haematuria, and urinary tract infection. Cystitis was reported by 122 patients (88%), microscopic haematuria by 21 patients (15%), intermittent gross haematuria by 3 patients (2%) and urinary tract infection by 8 patients (6 percent)

Patients who developed recurrent disease or progression were discussed in Urology Multi disciplinary meeting (MDT) and were given a trial of re induction after complete TURBT. Out of 34 patients, 32 received re induction BCG while 2 were offered cystectomy due to extent of disease but both never underwent cystectomy. Out of 32 patients receiving re induction BCG, 24 patients had completed re induction and maintenance BCG while remaining 8 patients were discussed in Urology MDT for salvage cystectomy. 3 out of 8 patients underwent salvage cystectomy while 5 declined cystectomy and were placed on follow up.

DISCUSSION

Non-muscle invasive bladder cancer (stage Ta, Tis, or T1) is initially treated with TURBT. Several factors influence the risk of recurrence and progression. These tumours should be grouped according to the table 1. Table 2 displays the percentages based on tumour grade and stage. The European Organization for Research and Training in Cancer has created a calculator that takes into account prior recurrence rate, number of tumours, tumour diameter, tumour stage, tumour grade, and concomitant Cis [10].

Non-muscle invasive bladder cancer has a recurrence rate of 60 – 80 percent if left alone after transurethral resection of bladder tumour (TURBT) [2,3]. Our data suggests that the recurrence rate in our patient population is similar to the rates reported in western literature. Intravesical mitomycin is the standard treatment for pTa after TURBT, while intravesical BCG is used for Tis, HG and pT1[11,12]. Patients who develop a recurrence of disease while on maintenance therapy are given a trial of re-induction therapy. A second recurrence necessitates radical cystectomy, which the majority of patients are hesitant to undergo. In our patient population , only 3 patients underwent cystectomy while the rest i-e at least 7 patients had declined the procedure. At this point, the vast majority of these patients are lost to follow-up, and they only return when they have locally advanced or metastatic disease. Prospective trials have shown that intravesical BCG is superior to any systemic chemotherapy for pT1 disease [13-15]. Low risk group patients benefit from a single intravenous instillation of Mitomycin, according to a consensus among urologists and oncologists based on the EORTC and MRC trials [15-17]. Intravesical BCG should be administered to intermediate and high-risk patients following TURBT, according to the SWOG/MRC protocol. The best BCG protocol has yet to be determined, but the recommendations are for 2–3 years. According to van der Meijden et al., the majority of high grade pT1 (pT1G3) tumours recur, whereas BCG extended time to recurrence but not time to progression when compared to Epirubicin [18].

CONCLUSION

BCG remains the treatment of choice for high-risk disease. There is evident reluctance on part of patients to undergo salvage cystectomy once the BCG fails.

CONFLICT OF INTEREST

The authors have no conflict of interest to disclose.

DISCLOSURE

This article has not been submitted for publication to any other journal. Updates on the study, however, have been presented orally at national Oncology/Urology conferences.

AUTHORS' CONTRIBUTION

Abdus Samad Syed	Conception and design, Critical revision
Fauzia Abdus Samad	Analysis and interpretation of data, Drafting the Article
Sameed Hussain	Acquisition of data

REFERENCES

1. Siegel RL, Miller KD and Jemal A. Cancer statistics, 2018. CA Cancer J Clin. 2018 Jan;68(1):7-30. doi: 10.3322/caac.21442. Epub 2018 Jan 4.
2. Kiemeney LALM, Witjes JA, Verbeek ALM, Heijbroek RP, Debruyne FMJ. The clinical epidemiology of superficial bladder cancer. Br J Cancer 1993;67:806-12.
3. Lamm DL, Griffith JG. The place of intravesical chemotherapy as defined by results of prospective randomized studies (substances and treatment schemes). Prog Clin Biol Res 1992;378:43-53.
4. Morrison DA, Murphy WM, Ford KS, Soloway MS. Surveillance of stage 0 grade 1 bladder cancer by cytology alone: is it acceptable? J Urol 1984; 132:672-4.
5. Lamm DL, Long-term results of intravesical therapy for superficial bladder cancer. Urol Clin North Am 1992;19:573-80.
6. Pawinski A, Sylvester R, Kurth KH, Bouffioux C, Van der Meijden A, Parmer MK, et al. A combined analysis of EORTC and MCR randomized clinical trials forthe prophylactic treatment of TaT1 bladder cancer. J Urol 1996;156:1934-40.
7. European Association of Urology Guidelines 2017. Available at http://uroweb.org/guideline/non-muscle-invasive-bladder-cancer/#6. Accessed on 8 Sep 2018.
8. Pawinski A, Sylvester R, Kurth KH, Bouffioux C, van der Meijden A, Parmar MK, et al. A combined analysis of European Organization for Research and Treatment of Cancer, and Medical Research Council randomized clinical trials for the prophylactic treatment of Stage TaT1 bladder cancer. J Urol 1996;156:1934-41.
9. Cancer Therapy Evaluation Program. (1999, April 30). Common Toxicity Criteria. Retrieved April 20,2012, from eortc.be/services/doc/ctc/ctcv20_4-30-992.pdf
10. Sylvester RJ, van der Meijden APM, Oosterlinck W, Witjes JA, Bouffioux C, Denis L, et al. Predicting Recurrence and Progression in Individual Patients with Stage Ta T1 Bladder Cancer Using EORTC Risk Tables: A Combined Analysis of 2596 Patients from Seven EORTC Trials. Eur Urol

2006;49: 466 - 477.

11. Sylvester RJ, Oosterlinck, van der Meijden AP. A single immediate postoperative instillation of chemotherapy decreases the risk of recurrence in patients with stage Ta T1 bladder cancer. A meta analysis of published results of randomized clinical trials. J Urol 2004;171:2186-2190, quiz 2435.
12. Bladder Cancer. (2011, December 22). Montei JE, Clark PE, Agarwal N, et al. NAtional Comprehensive Cancer Network. Retrieved April 17, 2012 from nccn.org/professionals/physician_gls/pdf/bladder.pdf
13. Herr HW, Schwalb DM, Zhang ZF, Sogani PC, Fair WR, Whitmore WF Jr, et al. Intravesical bacillus Calmette–Guérin therapy prevents tumor progression and death from superficial bladder cancer: ten-year follow-up of a prospective randomized trial. J Clin Oncol 1995;13:1404–8.
14. Pawinski A, Sylvester R, Kurth KH, Bouffioux C, van der Meijden A, Parmar MK, et al. A combined analysis of European Organization for Research and Treatment of Cancer and Medical Research Council randomized clinical trials for the prophylactic treatment of stage TaT1 bladder cancer. European Organization for Research and Treatment of Cancer Genitourinary Tract Cancer Cooperative Group and the Medical Research Council Working Party on Superficial Bladder Cancer. J Urol 1996;156: 1934–40.
15. Lamm DL, Blumenstein BA, Crissman JD, Montie JE, Gottesman JE, Lowe BA, et al. Maintenance bacillus Calmette–Guérin immunotherapy for recurrent TA, T1 and carcinoma in situ transitional cell carcinoma of the bladder: a randomized Southwest Oncology Group Study. J Urol 2000; 163:1124–9.
16. Isbarn H, Budäus L, Pichlmeier U, Conrad S, Huland H, Friedrich MG. Comparison of the effectiveness between long-term instillation of mitomycin C and short-term prophylaxis with MMC or bacille Calmette-Guérin. Study of patients with non muscle-invasive urothelial cancer of the urinary bladder. Urologe A. 2008;47:608-15.
17. Volpe A, Racioppi M, D'Agostino D, Cappa E, Filianoti A, Bassi PF. Mitomycin C for the treatment of bladder cancer. Minerva Urol Nefrol. 2010;62(2):133-44.
18. van der Meijden AP, Brausi M, Zambon V, Kirkels W, de Balincourt C, Sylvester R. Members of the EORTC Genito-Urinary Group. Intravesical instillation of epirubicin, bacillus Calmette–Guérin and bacillus Calmette–Guérin plus isoniazid for intermediate and high risk Ta, T1 papillary carcinoma of the bladder: a European Organization for Research and Treatment of Cancer genito-urinary group randomized phase III trial. J Urol 2001;166:476–81.

CASE REPORT

ECCRINE ANGIOMATOUS HYPERPLASIA WITH UNUSUAL FEATURES.

Naeem Raza[1]
[1]Pakistan Atomic Energy Commission (PAEC) General Hospital, Islamabad

ABSTRACT
Eccrine Angiomatous Hyperplasia (EAH) describes a rare angiomatous skin lesion which on histopathology shows prominent blood vessels and aggregates of eccrine glands. EAH is both clinically and histologically heterogeneous showing varied clinical and microscopic features. We report a case of 30 years old male presenting with a large linear plaque and episodes of spontaneous bleeding from the lesion. Histologically, in addition to the usual features of EAH there was also proliferation of sebaceous glands and areas reminiscent of nevus sebaceous. The presence of sebaceous differentiation suggests that these hamartomas may be of apocrine origin. The areas reminiscent of nevus sebaceous, warrants careful follow up for malignant transformation in our patient. To the best of our knowledge these features have not been documented before in EAH.
Keywords: *Eccrine Angiomatous Hyperplasia, Sebaceous differentiation*
How to cite: Raza N. Eccrine angiomatous hyperplasia with unusual features. HMDJ 2022; 02(01): 37-39

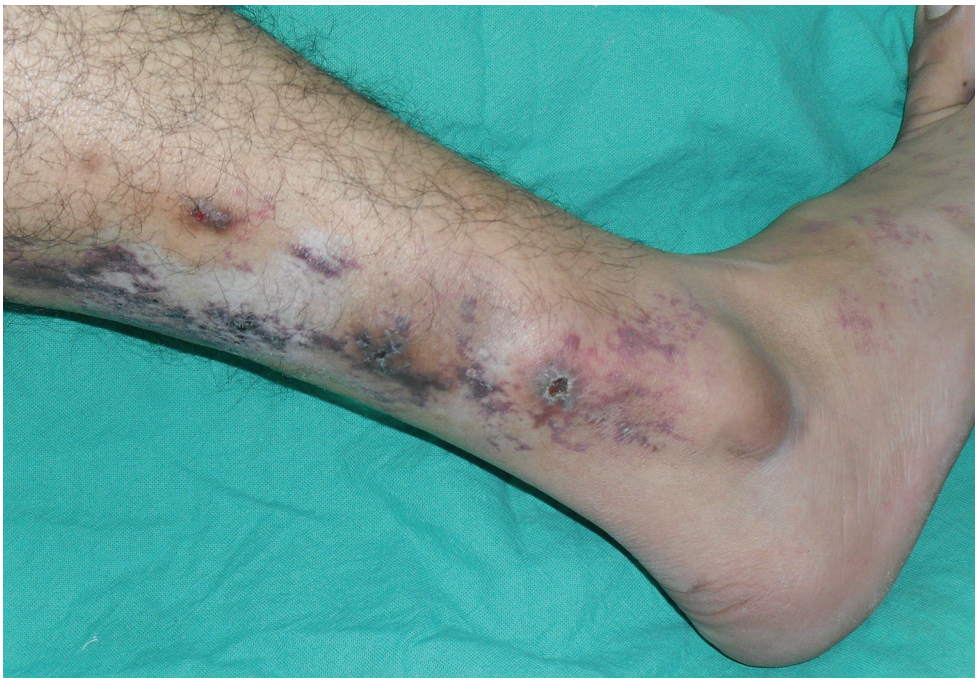

Figure 1: Clinical picture

INTRODUCTION

Lotzbeck [1] in 1859 described an angiomatous lesion on cheek of a child which on histopathology showed prominent blood vessels and aggregates of eccrine glands. The term Eccrine Angiomatous hyperplasia (EAH) was coined for such lesions by Hyman [2] in 1968. Since then less than 80 cases have been described in literature documenting proliferation of additional mesenchymal elements. A biochemical fault in the interactions between differentiating epithelium and subjacent mesenchyme that gives rise to an abnormal proliferation of mesenchymal, adenexal and vascular structures [3-5] has been proposed to explain the pathogenesis of EAH.

It usually presents as flesh colored, hyperhidrotic, hypertrichotic, painful macule, papule, nodule or a plaque on the extremities present congenitally or developing later on. We

Correspondence to: Dr. Naeem Raza, Pakistan Atomic Energy Commission (PAEC) General Hospital, H-11/4, Islamabad
Email: naeemraza561@hotmail.com
Conflict of interest: None
Financial Disclosure: None
Received: 01-05-2022
Accepted: 31-05-2022

report a case of this rare entity in a 30 years old male with new additional clinical and histological features. Our patient had a large linear lesion with episodes of spontaneous bleeding from the lesion. Histologically, in addition to the usual features there was also proliferation of sebaceous glands and areas reminiscent of nevus sebaceous. To the best of our knowledge these features have not been documented before.

CAPSULE SUMMARY

The author reports a case of Eccrine Angiomatous hyperplasia (EAH) with the unusual features of proliferation of sebaceous glands and areas reminiscent of nevus sebaceous for the first time in literature. These new findings stress on the need of long term follow-up for development of local malignancy.

CASE REPORT

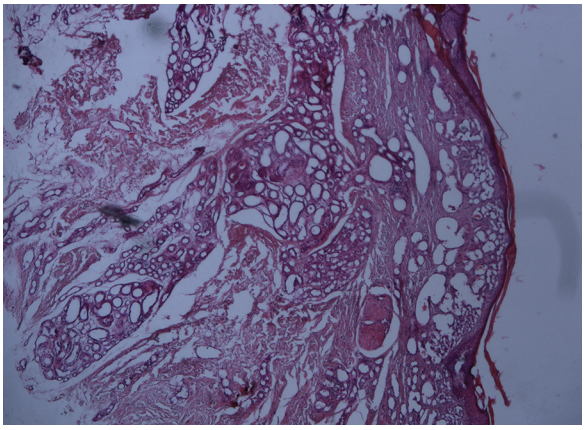

Figure 2: Histopathology

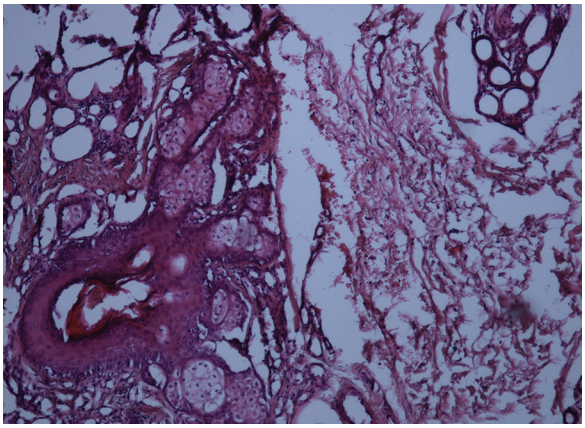

Figure 3a: Histopathology

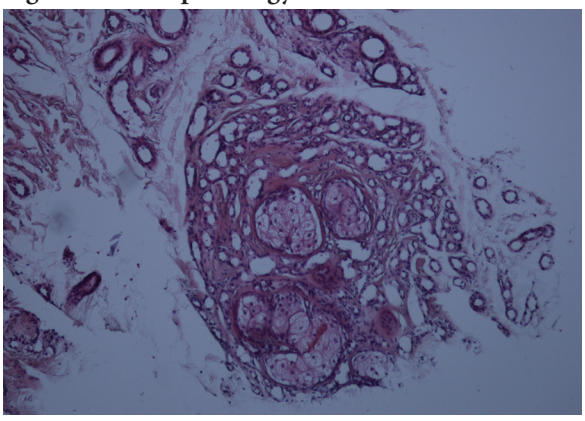

Figure 3b: Histopathology

A 30 years old male Pakistani presented with a 10 years history of a linear plaque over outer side of right leg. The plaque gradually increased in size over five years to involve the lateral side of the leg from mid calf to the planter and dorsal aspect of the right foot. The lesion was symptomatic in bleeding profusely on trauma and sometimes spontaneously. It was mildly tender and painful after minor trauma. There was no history of excessive sweating or hair growth over the lesion. There was no family history of similar lesions. On examination, a patchy erythmatous macular lesion was seen extending in a linear fashion from middle of right lateral calf to the planter and dorsal aspect of the right foot up to the bases of toes. The lesion measured 41 X 6 cm in its largest dimensions. At places the lesion was raised forming plaques with superficial erosions and crusts (Figure 1). At this stage a differential diagnosis of haemangioma and angiokeratoma was considered and skin biopsy was taken. Histopathology showed mild hyperkeratosis with normal prickle cell layer. There was marked dilatation and proliferation of thin walled blood vessels immediately below the epidermis causing compression of the overlying epidermis, reducing it to a thin fringe at places. There was widespread proliferation and dilatation of eccrine structures (Figure 2). At places these two structures intermingled with each other. There were scattered areas of dysgenesis of pilosebaceous units resembling nevus sebaceous (Figure 3a). At other places there was proliferation of sebaceous glands intermingled with eccrine structures (Figure 3b). On the basis of these findings, a diagnosis of EAH was made. The patient was briefed about the prognosis of the condition and was advised to avoid trauma in order to minimize bleeding from the lesion. Regular follow up was advised.

DISCUSSION

EAH is clinically and histologically heterogeneous, with a wide range of clinical and microscopic characteristics. Almost half of all lesions are present at birth, one-quarter appear in childhood, and the remainder appear in adulthood[2-5]. The most common clinical presentation is an acrally located papule, plaque, or nodule, though lesions on the trunk (25.5%) and scalp (2.1%) may also be seen [2-4]. In approximately 25% of cases, multiple lesions are present. The largest reported size is 8X11 cm [6]. In our patient the onset was in adulthood. The lesions were multiple angiomatous macules, nodules and plaques which were disposed on right lower leg and foot in a linear distribution and measured 41X6 cm in largest dimensions. Linear lesions in EAH have not been documented before. A case of extensive linear verrucous epidermal nevus showing mixed histological changes of verrucous epidermal nevus, nevus sebaceous, and eccrine angiomatous hamartoma has been described [7] but the lesions were clinically those of verrucous epidermal nevus in contrast to the angiomatous appearance as in our case.

Clinically Linear angiomatous arrangement caused confusion with segmental angioma and angiokeratoma in our patient.

EAH can be asymptomatic, painful (42%), or hyperhidrotic (32%) [8]. In our patient, the lesion was not hyperhidrotic and displayed mild tenderness which improved after partial excision. Our patient displayed spontaneous hemorrhage from the lesions, a feature not documented before. The most likely cause could be marked proliferation of blood vessels seen just underneath the epidermis causing it to be thinned to a small fringe and making it vulnerable to rupture with minor unnoticed trauma.

Histologically, EAH displays proliferation of normal or dilated eccrine glands, in close association with angiomatous foci and variable presence of pilar[9], lipomatous[10], mucinous[11], bony[12] and lymphatic structures[13] making it an organoid hamartoma. Acekerman reclassified many eccrine tumours as apocrine, and many adenexal that were previously thought to only show eccrine ductal differentiation now show ductal apocrine differentiation. Our patient had areas of dysgenesis of pilosebaceous units similar to nevus sebaceous, as well as sebaceous element proliferation, a previously unknown feature. Because of the close relationship between the apocrine and pilosebaceous units, our case could be an apocrine-folliculo-sebaceous unit hamartoma, indicating apocrine-sebaceous angiomatous hyperplasia.

Furthermore, epidermal organoid naevi with sebaceous elements have been linked to the development of a variety of benign and malignant neoplasms, possibly due to a loss of heterozygozity in the region of the human homologue of the Drosophila patched (PTCH) gene15.Although there was no evidence of malignancy in our patient, it should be carefully followed up in the above pretext.

In conclusion, our case has widened the clinical and histological spectrum of EAH by displaying very large linear angiomatous lesion showing spontaneous hemorrhage from the lesion. The presence of sebaceous elements histologically, argues in favour of the possible apocrine origin of these tumors as well as warrants careful follow up for malignant transformation in our patient.

REFERENCES

1. Lotzbeck C. Ein Fall von Schweissdruesengeschwulst an derWauge. Virchow Arch Pathol Anat 1859;16: 160.
2. Hyman AB, Harris H, Brownstein MH. Eccrine angiomatous hamartoma. NY State J Med 1968; 68: 2803–6.
3. Foshee JB, Grau RH, Adelson DM, Crowson N. Eccrine angiomatous hamartoma in an infant. Pediatr Dermatol 2006; 23: 365–368.
4. Garcı´a-Arpa M, Rodrı´guez-Va´zquez M, Cortina-de la Calle P et al. Multiple and familial eccrine angiomatous hamartoma. Acta Derm Venereol 2005; 85: 355–7.
5. Nakatsui TC, Schloss E, Krol A, Lin AN. Eccrine angiomatous hamartoma: report of a case and literature review. J Am Acad Dermatol 1999; 41:109–11.
6. Larralde M, Bazzolo E, Boggio P, Abad ME, Mun˜oz AS. Eccrine angiomatous hamartoma: report of five congenital cases. Pediatr Dermatol 2009; 26: 316–9.
7. Campen R, Zembowicz A, Liu V et al. Linear ectodermal cutaneous hamartoma. Int J Dermatol 2003; 42: 376–379.
8. Jeong E, Park HJ, Oh ST et al. Late-onset eccrine angiomatous hamartoma on the forehead. Int J Dermatol 2006; 45: 598–599.
9. Velasco JA, Almeida V. Eccrine-pilar angiomatous nevus. Dermatologica. 1988; 177(5): 317-22.
10. Donati P, Amantea A, Balus LEccrine angiomatous hamartoma: a lipomatous variant. J Cutan Pathol. 1989 Aug;16(4):227-9.
11. Tsunemi Y, Shimazu K, Saeki H, Ihn H, Tamaki K. Eccrine angiomatous hamartoma with massive mucin deposition. Eur J Dermatol. 2005;15(4):291-2.
12. Bertacchini M, Zala TV. Ekkarin angiomatous nevus. Hautarzt 1991; 42: 631-3.
13. Enjoralos O, Mulliken JB. Vascular tumors and vascular malformations(New Issue). Adv Dermatol 1988; 13: 375-422.

CESAREAN SCAR ECTOPIC PREGNANCY: A CASE REPORT

[1]Fehmida Shaheen, [1]Rukhsana Afzal , [1]Mahwash Jamil
[1]Department of Gynecology and obstetrics
HITEC-IMS, Taxila

ABSTRACT
Cesarean scar ectopic pregnancy (CSP) is the least common site of ectopic pregnancy. The rate of caesarean sections is rising, which is why the incidence of CSP is rising. A considerable increase in maternal morbidity and mortality can result from its delayed diagnosis. Early first trimester ultrasound helps us identify location of pregnancy so one diagnosis is made the early management can be done accordingly. The case of an ectopic pregnancy in a patient who had previously undergone two caesarean sections is presented in this case report. At 12 weeks pregnant, this woman reported with an acute abdomen. Transvaginal ultrasonography suggested the diagnosis. At the time of the laparotomy, the placenta was found to be projecting through the previous scar with active bleeding from the scar. The gestational sac and fetus were removed. The burst scar was repaired, protecting the uterus and patient's fertility in the future.
Keywords: *Obstetrics, Cesarean scar, Ectopic pregnancy*
How to cite: Shaheen F, Afzal R, Jamil M. Caesarean scar ectopic pregnancy: a case report. HMDJ 2022; 02(01): 40-42

INTRODUCTION

Extra-uterine implantation of embryo is known as ectopic pregnancy [1]. More than 90% happen in the fallopian tube[2]. Ectopic pregnancy may very rarely occur in the cervix, ovary, abdominal cavity, or in scars of a cesarean section. Ectopic pregnancies account for 9% of pregnancy-related fetal fatalities causing maternal morbidity and mortality [3]. A prior hysterectomy, uterine manipulation, and invitro fertilization all contribute to extopic pregnancy. Around 1 in 2000 pregnancies result in an ectopic pregnancy in a cesarean scar [4]. Around 161 cases have been documented as of today after the first incident was reported in 1978 [3].

Scar ectopic pregnancies are seen in two different varieties. Type-1 starts in the myometrium, expanding internally toward the uterine cavity, while Type-2 advances externally toward the uterine serosa. Type 2 ectopic pregnancy is more likely to result in complications such uterine rupture, uncontrolled bleeding, and maternal death. Pelvic pain and vaginal bleeding during the first trimester are the usual symptoms. The most widely used and reliable investigation is transvaginal ultrasonography. In ambiguous situations, a magnetic resonance imaging (MRI) scan may be required for confirmation of the diagnosis [4].

This case report and literature review describes a rare instance of a first-trimester caesarean scar pregnancy with uterine rupture in which the uterus was repaired, protecting the patient's fertility in the future.

CAPSULE SUMMARY

This study presents a case of cesarean scar ectopic pregnancy, suspected on a transvaginal ultrasound and confirmed on laparotomy. Gestational sac and fetus were removed and scar repaired, hence preserving the uterus and future fertility.

CASE PRESENTATION

A 28-year-old woman, Gravida 4, Para 2 with a history of two prior scars presented with acute abdomen at 12 weeks gestation. Her first cesarean was performed under emergency circumstances when her first stage of labour failed to proceed, and her second delivery took place two years ago during an elective repeat cesarean. Three years ago, she had spontaneously miscarried in the first trimester. This time she arrived at the emergency room complaining of lower abdominal pain since the morning. Her blood pressure was 100/60 mm Hg, pulse was 100/min, and she seemed clinically pale. An examination of the abdomen revealed tenderness with signs of peritonitis. Her hemoglobin (Hb) level was 7 g/dl. The radiologist performed an urgent abdominopelvic ultrasound, which revealed an intrauterine fetus of 6.7cm Crown Rump Length (CRL) in the lower segment of the uterus with normal fetal movements and heart activity, as well as significant free fluid in the Morrison's pouch and the pelvis. On ultrasound, the right adnexal region revealed possible clots and there was hemoperitoneum, raising

Correspondence to: Dr. Mahwash Jamil, Department of Gynecology and obstetrics HITEC-IMS, Taxila
Email: mahwashdr26@gmail.com
Conflict of Interest: None
Financial Disclosure: None
Received: 09-07-2021
Accepted: 20-07-2022

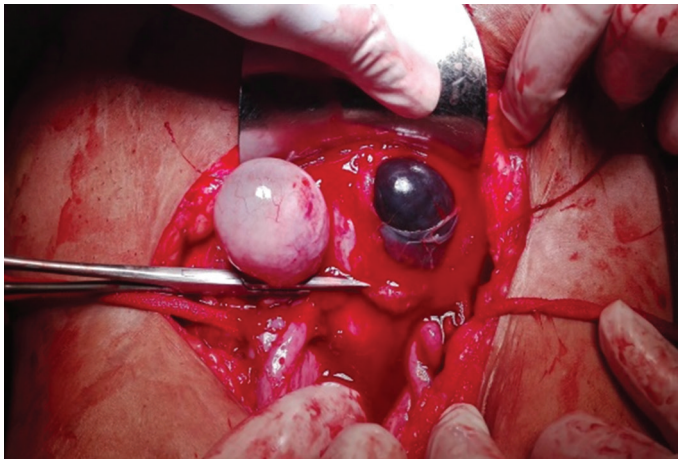

Figure 1: Gestational sac protruding through previous scar

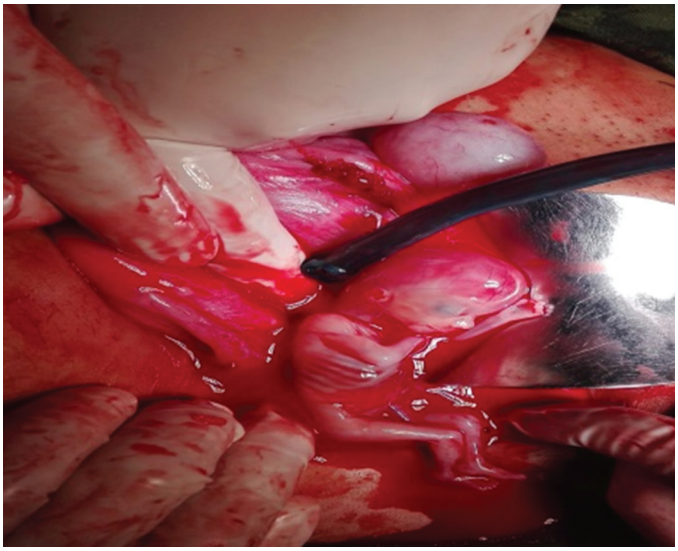

Figure 2: Fetus of 12 weeks coming out of previous scar

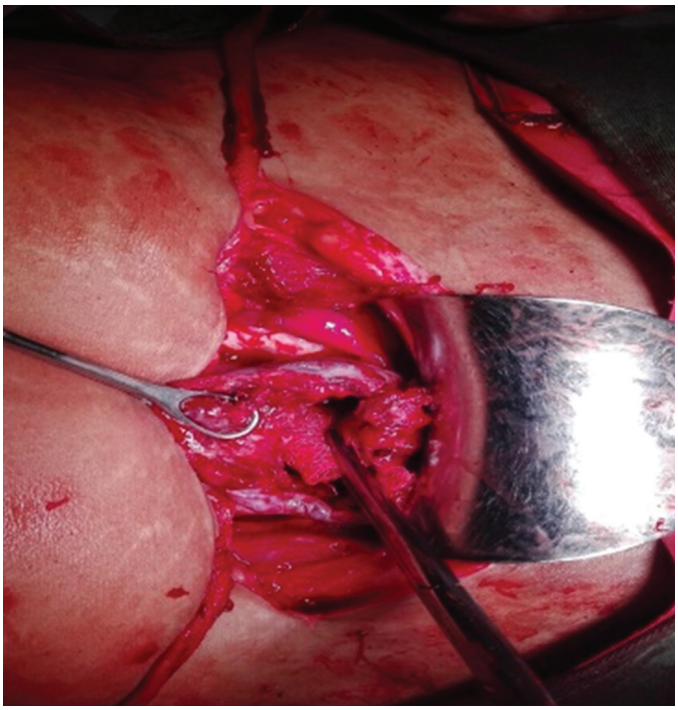

Figure 3: Scar area after surgical resection

the possibility of an ectopic pregnancy or a burst right adnexal hemorrhagic cyst.

Emergency laparotomy was performed because of the acute abdomen. About 500 cc of clots were removed during laparotomy. Bleeding was found in the prior scar, with the placenta protruding through. It was removed in bits. Gestational sac and fetus were removed. Hemostatic sutures were used to secure hemostasis. We closed the uterus in two layers (Figures 1,2,3 : Pictures taken during surgery) . An intraperitoneal drain was inserted. We closed the abdomen in reverse order. Blood was transfused (03 units), 01 during surgery and 02 afterwards. Her Hb level was 7.9 g/dl, post-operatively. Parenteral iron (05 doses) was administered. Her serum beta human chorionic gonadotropin (hCG) level was 5230 mIU/ml.

Patients recovered smoothly, and was discharged from the hospital on the sixth post-op day, in good health, with instructions to return to the gynecology out-patients department after seven days with a report of her serum beta HCG levels.

DISCUSSION

Ectopic pregnancy within a cesarean scar is uncommon. i.e. less than one percent of total pregnancies [5]. There is a rise in the incidence of scar ectopic pregnancies with an increased rate of cesarean section deliveries. According to the Centers for Disease Control and Prevention (CDC), the percentage of caesarean delivery in the United States was 20.7 in year 1996, but it is now 32 percent in 2017. Because of the increased availability of transvaginal ultrasound, an increasing number of cases are being diagnosed pre-operatively.

In order to establish the confirmed diagnosis of a cesarean scar ectopic pregnancy, transvaginal ultrasound with color, spectral and power doppler imaging is in frequent use. The sensitivity of transvaginal ultrasonography is 84.6%. Three-dimensional ultrasonography is a more recent diagnostic tool utilized in tertiary care facilities with sophisticated equipment. In situations where the diagnosis is uncertain, Magnetic Resonance Imaging (MRI) and diagnostic laparoscopy can be used. Several diagnostic criteria for cesarean scar ectopic pregnancy were proposed by Timor-Tritsch;

1. Empty uterine cavity as well as endocervical canal.

2. Gestational sac is situated next to the scar from the prior cesarean delivery in the anterior part of the lower segment of the uterus.

3. Doppler ultrasonographic evidence of a functional trophoblastic tissue at the site of implantation in the scar.

4. During <8 weeks gestation, a triangular gestational sac filling the scar niche (after eight weeks of gestation, a round or oval sac may be seen).-

5. Cervical canal, closed & empty.

6. Fetal pole and/or yolk sac with or without cardiac activity.

7. Absent or deficient healthy myometrium between the bladder & the gestational sac [6].

Several theories have been proposed to explain the pathogenesis of caesarean scar ectopic pregnancy. According to one theory, after past uterine surgery, most frequently a previous cesarean section, the embryo at the blastocyst stage invades the myometrium in a microscopic portion of the uterine dehiscent tract. However, patients without a history of uterine surgery can have scar ectopic pregnancy [7]. Another theory is that scar pregnancy occurs as a result of trauma to the birth tract and uterus during manual placenta removal or assisted reproductive techniques [5]. The patient mentioned in this case report, had a history two cesarean sections, putting her at risk for scar ectopic pregnancy in the scar.

The basics of CSP treatment are an early diagnosis and management, and maintenance of reproductive function as much as possible [8]. Conservative treatment is not recommended because it can lead to significant hemorrhage later on[9]. Methotrexate as systemic therapy is also less effective for CSP than it is for other sites of ectopic pregnancy, such as tubal ectopic pregnancy. Recently, improved outcomes have been reported with local administration of intralesional methotrexate injection under ultrasound guidance. Local administration is done either transvaginally or transabdominally [6].

A newer advance in these cases is uterine artery embolization (UAE). A combination of intralesional methotrexate injection with UAE therapy has recently been reported with significant success. After treatment, suction and curettage can be used if vaginal bleeding still occurs [10].

Following a CSP diagnosis, planned or emergency surgical intervention is a safe and commonly used option [9]. During a laparotomy, the ectopic sac and previous scar tissue are resected in such a way that all products of conception are removed. In such cases, a laparoscopic approach can be used if it is thought feasible and sufficient expertise is available [10].

Concluding it all, a tailored treatment based on gestational age, fetal viability, the intensity of symptoms, blood hCG levels, and ultrasonographic results can help treat CSEP successfully [9]. The key to successful treatment and lower maternal morbidity and death is an early and prompt diagnosis [6].

REFERRENCES

1. Brancazio S, Saramago I, Goodnight W, McGinty K. Cesarean scar ectopic pregnancy: Case report. Radiol Case Rep. 2019; 14:354-9.
2. Kenny L, Bickerstaff H, editors. Gynaecology by Ten Teachers. CRC Press; 2017 May 8.
3. Hummeida ME, Rahman EA, Ahmed A. Cesarean scar ectopic pregnancy case report and literature review. Sudan Med J. 2015;51: 45-52.
4. Majangara R, Madziyire MG, Verenga C, Manase M. Cesarean section scar ectopic pregnancy-a management conundrum: a case report. J Med Case Rep. 2019; 13:1-4.
5. Hoffman T, Lin J. Cesarean scar ectopic pregnancy: diagnosis with ultrasound. Clin Pract Cases Emerg Med. 2020; 4: 65-72.
6. Koplay M, Dogan NU, Sivri M, Erdogan H, Dogan S, Celik C. Ectopic pregnancy in a Cesarean section scar: successful management using vacuum aspiration under laparoscopic supervision mini review of current literature. Case Reports in Surgery. 2016 Nov 24;2016.
7. Al Gadeeb S, Al Gadeeb M, Al Matrouk J, Faisal Z, Mohamed A. Cesarean Scar–Unusual Site of Ectopic Pregnancy: A Case Report. Cureus. 2019 Oct 22;11(10).
8. Fu LP. Therapeutic approach for the cesarean scar pregnancy. Medicine. 2018 May;97(18).
9. Jayaram PM, Okunoye GO, Konje J. Caesarean scar ectopic pregnancy: diagnostic challenges and management options. Obstet Gynaecol. 2017; 19:13-20.
10. Najam S, Malik SE, Aqeel S, Rizwan N, Haider AR. Viable caesarean scar pregnancy: A case report. Biomedica. 2020; 36:10-4.

SHORT COMMUNICATION

FOOD AS MEDICINE

Arfan ul Bari
Consultant Dermatologist, CMH Rawalpindi

Research indicates that some civilizations (Egyptians, Chinese & Sumerians etc) used food as both prophylactic and therapeutic medicine, and food has been studied for many centuries for its medicinal properties [1]. Stephen DeFelice created the word "nutraceutical" in 1989, combining the words "nutrition" and "pharmaceutical." It is defined as "a food or part of a food that provides medical or health benefits, including disease prevention and/or treatment". Nutraceuticals is an overarching term that refers to any food- derived product that provides numerous health benefits along with its fundamental food value. Stuff that classically makes claims about improving health, preventing chronic diseases, slowing down ageing, and enhancing life expectancy. For many years, nutraceutical products were considered alternative medicine, but they have now become a mainstream dietary supplement [2].

CAPSULE SUMMARY

The author has elucidated the role of food as medicine, encompassing the major types along with the main ingredients and functions of each

CLASSIFICATION OF NUTRACEUTICALS

Nutraceuticals are a broad category that includes a wide range of products.

A. **Functional foods:** "Functional food" is the term used when food is cooked / made with or without knowledge of how or why it is being used. Thus, it supplies the necessary proteins, carbohydrates, fats, vitamins and minerals for health. A nutraceutical is a functional food that assists in preventing and/or treating diseases other than anemia. Instead of having liquid or capsule-based nutritional supplements, functional foods allow people to feed on natural, enriched foods. "Nutrification" is a process of enrichment or fortification of the functional food [3].

B. **Nutritional supplements:** A nutritional supplement is a liquid or capsule that has food-derived nutrients in it. Definition of a dietary supplement by the Dietary Supplement Health and Education Act (DSHEA) of 1994 is "a product taken by mouth that contains a "dietary ingredient" in order to supplement the diet which might include amino acids , minerals .vitamins, enzymes, organ tissues, herbs or other botanicals and metabolites. These are available in capsules, tablets, soft gels, liquids, and powders3. Nutritional supplements are not formulated to diagnose, cure, treat, or prevent any disease and prior FDA approval before marketing (FDA)is not required for them [4].

C. **Medicinal foods:** Medicinal foods are not sold freely to the general public. These are aimed for specialized nutritional treatment of a particular medical disorder, which different nutritional requirements are identified for by medical evaluation. These foods are based on acknowledged scientific principles, designed to be ingested / supplied, under the supervision of a physician. Medicinal meals are generally developed to fulfill specific nutritional needs for patients suffering from definite ailments, and can be taken by mouth or through a tube [5].

D. **Pharmaceuticals:** These are medically beneficial compounds derived from genetically modified agricultural harvests or have an animal-source (generally by biotechnology). In agricultural circles, the word pharmaceuticals is commonly linked with medical uses of genetically engineered reaps or animals [6].

Some foods with medicinal value are functionally classified in the table below [2];

S. No	Functions	Ingredient	Source
1	Antioxidants	Resveratrol	Red grapes
		Flavonoids	Dark chocolate, Citrus, Wine, Tea
		Anthocyanins	Berries
2	Cholesterol lowering foods	Products containing soluble dietary fibre	Psyllium seed husk
3	Foods that prevent malignancies	Sulforaphane	Broccoli
4	vascular health improving foods	Isoflavonoids	Soy or Clover
5	Lowering the chances of cardiovascular disease	α-Linolenic acid	Chia or Flax seeds

Correspondence to: Dr. Arfan ul Bari, Consultant Dermatologist, CMH Rawalpindi

Email: albariul@gmail.com

Conflict of Interest: None
Financial Disclosure: None

Received: 27-04-2022
Accepted: 09-06-2022

REFERENCES

1. Adelman J, Haushofer L. Introduction: Food as Medicine, Medicine as Food. J Hist Med Allied Sci. 2018 Apr 1;73(2):127-34.
2. Verma G, Mishra MK. A review on nutraceuticals: classification and its role in various diseases. International Journal of Pharmacy & Therapeutics. 2016;7(4):152-60.
3. Kaur S, Das M. Functional foods: An overview. Food Sci Biotechnol. 2011 Aug;20(4):861-75.
4. Wallace TC. Twenty years of the dietary supplement health and education act—how should dietary supplements be regulated?. J Nutr. 2015 Aug 1;145(8):1683-6.
5. Rahman MS, McCarthy OJ. A classification of food properties. Int J Food Prop. 1999 Jul 1;2(2):93-9.
6. Schubert D. A different perspective on GM food. Nat Biotechnol. 2002 Oct;20(10):969-.

Case 1

Can you diagnose it?

Check the correct answer on page 106

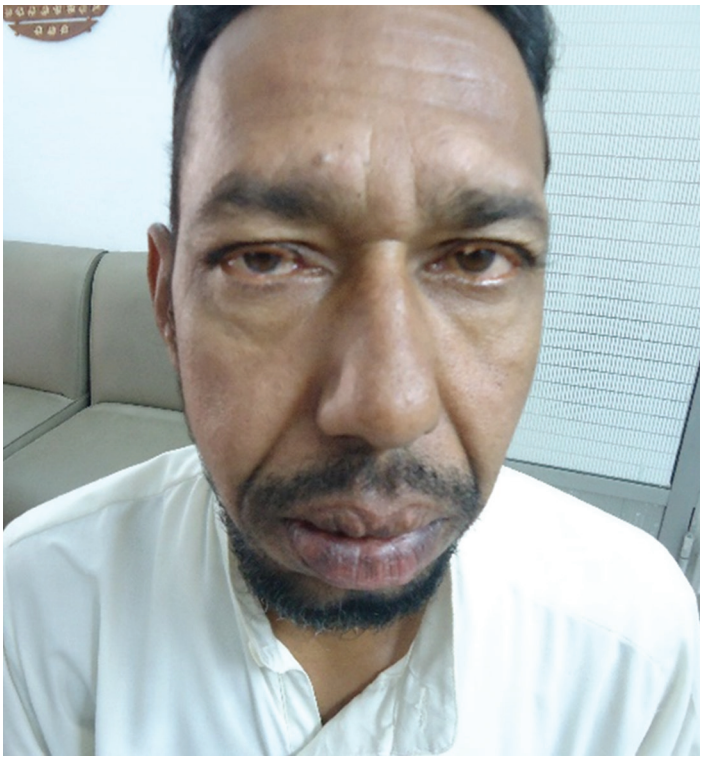

Figure 1a: Clinical picture

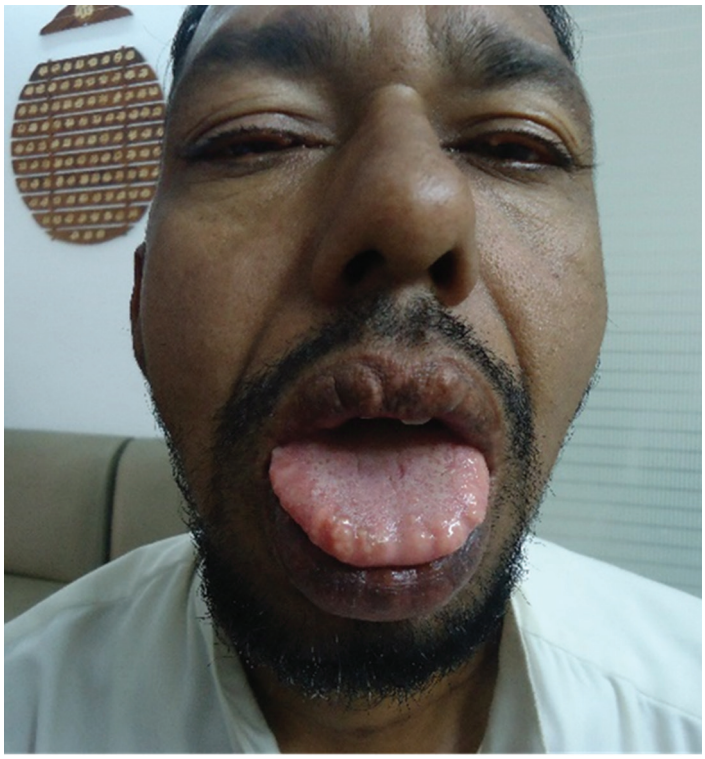

Figure 1b: Clinical picture

33-yr old male was referred from ENT department for multiple soft swellings on eyelids, tongue and lips since his early childhood. He was under evaluation for difficulty in swallowing and was found to have similar swellings in upper GI tract. He has noticed gradual progression in number and size of these soft swellings with coarseness of facial features.

General physical examination revealed tall, thin built man with high palate arch . Facial features are shown in fig 1(a) & (b) and histopathology of biopsy from mucosal nodule is depicted in fig 2.

1. What is your diagnosis?
2. What next investigation is warranted to detect life threatening association?

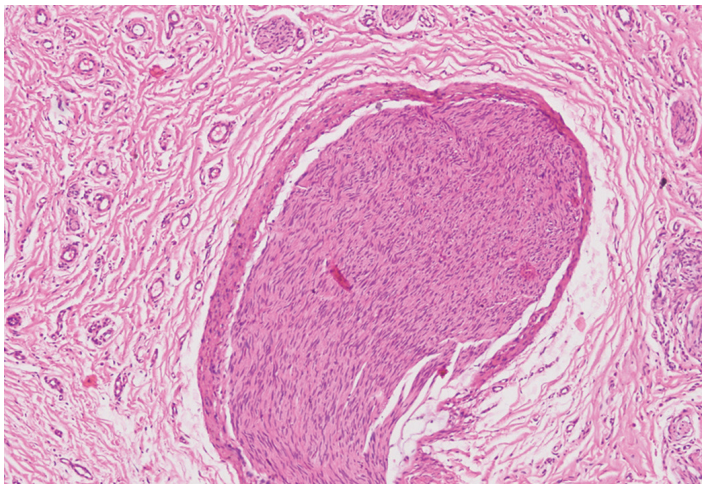

Figure 2: Histopathology

Case 2

Correlate these images and give your diagnosis.

Check the correct answer on page 106

Figure 1: Clinical picture

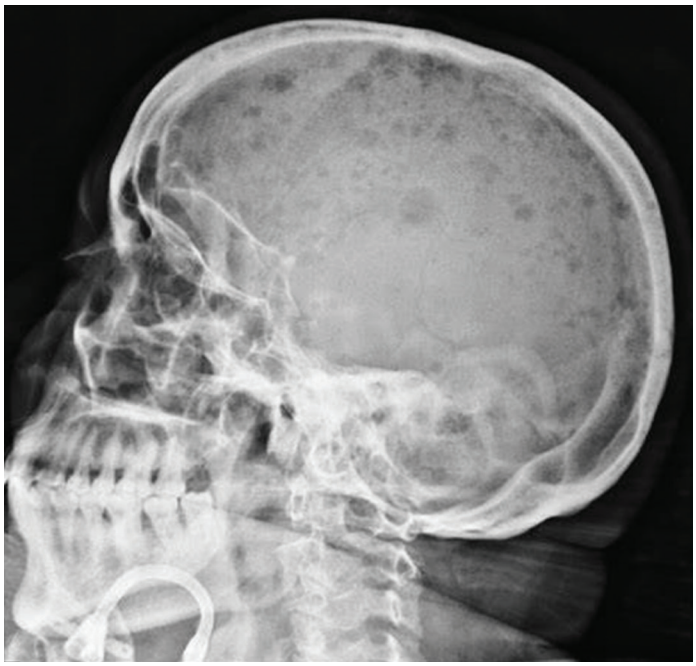

Figure 2: X-ray skull

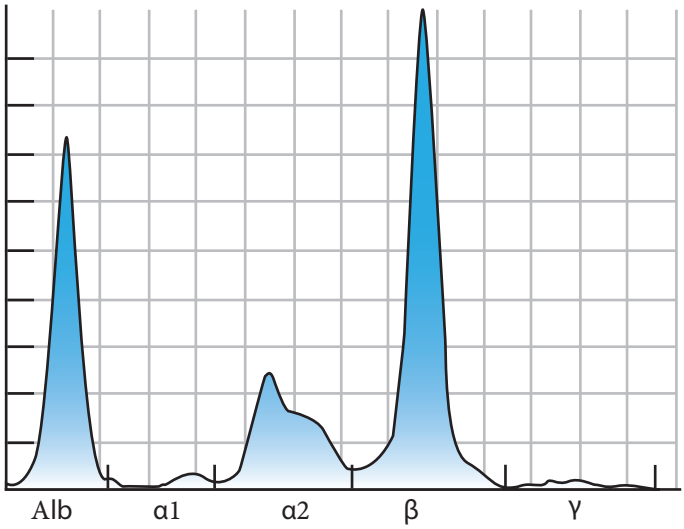

Figure 3: Electrophoresis

INSTRUCTIONS TO AUTHORS

For submission of articles and editorial correspondence: **editor.hmdj@hitec-ims.edu.pk**

1. HITEC Medical and Dental Journal (HMDJ) agrees to accept the manuscripts prepared in accordance with the 'Uniform Requirements for a manuscript submitted to the Biomedical Journals' as approved by the International Committee of Medical Journal Editors (ICMJE) guidelines, published in the British Medical Journal 1991; 302:334-41.
2. GENERAL CONSIDERATIONS:
   - **a.** Ethical / Legal matters:
     - **i.** Authors are required to send approval letter from Institutional Review Board (IRB)/ Ethical Review Committee (ERC) along with Original articles, short communications and Case reports. It is mandatory that IRB/ERC should have the date of approval along with the reference number.
     - **ii.** A submitted manuscript must be an original contribution, not previously published (except as an abstract or preliminary report), must not be under consideration for publication elsewhere, and if accepted, it must not be published elsewhere in a similar form.
     - **iii.** Manuscript must be accompanied by a certificate, signed by the author and all co-authors that they have seen and approved the final version of the manuscript and they have not submitted the manuscript to any other journal.
     - **iv.** Randomized Controlled Trial (RCT) should be registered and the trial registration number is mandatory.
     - **v.** It is the author's responsibility to ensure that the patient's anonymity is carefully protected and to verify that any experimental investigation with human subjects reported in the manuscript was performed with their informed consent and following all the guidelines for experimental investigations with human subjects required by the institution(s) with which all the authors are affiliated.
   - **b.** Responsibility
     - **i.** Although the editors and referees make every effort to ensure the validity of published manuscripts, the final responsibility rests with the authors, not with the Journal, its editors, or the publisher.
   - **c.** Authorship
     - **i.** Each person listed as an author is expected to have participated in the study according to ICMJE criteria.
       - **1.** He/She should have substantial contribution to:
         a. Conception and design
         b. Acquisition of data
         c. Analysis and interpretation of data
         d. Drafting the article or revising it critically for important intellectual content.
       - **2.** Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
       - **3.** Should have participated sufficiently in the work to take public responsibility for appropriate portions of the content.
     - **ii.** Those who provide technical support, writing assistance, or department chair who provided just general support should also be mentioned in acknowledgment
   - **d.** Conflict of Interest: The authors must provide a formal statement including any potential conflict of interest at the time of submitting the article. HMDJ follows the International Committee of Medical Journal Editors guidelines available www.icmje.org. In case of any conflict of interest, the author must submit an ICMJE form for disclosure of potential conflicts of interest (Available at the official website of HITEC- IMS(www.hitec-ims.edu.pk)
   - **e.** Financial Disclosure: Each author should submit a financial disclosure, warranting that he or she has no commercial associations (e.g., consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might post a conflict of interest in connection with the submitted article. All funding sources supporting the work and all institutional or corporate affiliations of the authors are acknowledged in a footnote in the work.
   - **f.** Copyright: All authors must sign a copy of the HMDJ author's certification proforma including information regarding the responsibilities of authors and copyright transfer and submit it with the article. The authors will be requested to sign an agreement to give copyright to the publishers.
   - **g.** Permissions: Authors must submit written permission from the copyright owner (usually the publisher) to use direct quotations, tables or illustrations that have appeared in copyright form elsewhere, along with complete details about the source.
   - **h.** Plagiarism Policy: All the submitted manuscripts will be checked for plagiarism by "TURNITIN" software. Articles with a similarity index of more than 19% will not be published. If the submitted article is found to have been totally or substantially plagiarized then the article is rejected outright with information to the author. The plagiarism certificate is sent to the corresponding author and the article is reconsidered after amendments. HITEC Medical and Dental Journal follows the ICMJE and HEC

criteria for plagiarism. The criteria can be accessed at www.icmje.org & www.hec.gov.pk.

i. Other Publication Misconducts: Other publication misconducts including fabrication (picture as well), falsification, duplicate submission, redundant publication, multiple submission, selective and misleading reporting, selective and 'misleading referencing are liable to strict action. All publication misconducts are dealt by first asking the corresponding author for an explanation in view of the available evidence. In case of non-response or unsatisfactory response from the authors, the manuscript is rejected if unpublished and retracted if published. Due notice of retraction will be given in print and on the website. The authors will be blacklisted for further submissions and considerations at the journal. The authors' institutional Head will also be informed of the misconduct and relevant action in such a case.

j. Peer Review: The editors will select the reviewers from Journal reviewer database according to specialty and expertise. Each manuscript will be sent to two external peer reviewers. Once the reviewed manuscript is received from both the reviewers, their comment/suggestions (if any) are communicated to the author for correction. The revised manuscript received from the author is re-assessed by the editor and the final decision regarding article acceptance/rejection is also made by the editor. Final version of manuscript is sent to corresponding author for proof reading before publication to avoid any mistakes. Corrections should be conveyed clearly & Editor informed by E-mail.

k. Article Publishing Charges: For the first year, there will be no publication charges.

3. SCOPE OF PUBLICATIONS:

a. Original Articles: Original articles should report original research of relevance to clinical medicine. These include randomized controlled trials, intervention studies, and studies of screening /diagnostic tests, outcome studies and cost- effectiveness analysis .The article should not exceed 4000 words in length (excluding title page, abstract, tables, figures, and references). The article words count for quantitative study should be in range 2000 - 2500 words (excluding references and abstract) with at least 18-25 references and 3–5 figures or tables. For qualitative study article word count should be in range of 3000-4000 words (excluding references and abstract) with at least 20-30 references and 3–5 figures or tables. Studies more than three years old at the time of submission are not entertained as per journal's policy. Any study ending three years before the date of submission is judged by the Editorial Board for its suitability as many changes take place over the time period, subject to the area of the study. The original article should contain the following sections.

i. Title page: It should include the following information:

1. Complete title as well as a short title of the article
2. Name of author(s)
3. Department(s)
4. Institution(s) at which work was performed
5. Author Affiliation
6. Subject Specialty
7. Corresponding authors phone/fax no, cell no, personal e-mail address and postal address
8. Short running title for header

ii. Abstract: It should contain a structured abstract of about 250 words and should include following sections

1. Objective
2. Study Design
3. Place and duration of study
4. Patients and Methods
5. Results
6. Conclusion
7. Keywords 3–10 (Medical Subject Headings – MeSH) in alphabetical order. If suitable MeSH terms are not yet available for recently introduced terms, present terms may be used.

iii. Text

1. Introduction: This should summarize the purpose and the rationale for the study. It should neither review the subject extensively nor should it have data or conclusions of the study. . At the end of the introduction, mention the rationale or scientific significance of the study.
2. Patients and Methods: This should include exact method or observation or experiment. If an apparatus is used, its manufacturer's name and address should be given in parenthesis. If the method is established, give reference but if the method is new, give enough information so that another author is able to perform it. If a drug is used, its generic name, dose and route of administration must be given. Methodology section should contain (without headings) study design, place and duration of study, sample size, sampling technique, inclusion and exclusion criteria, data collection and analysis procedure. Statistical method must be mentioned and specify any general computer programme used. The information system used should be clearly mentioned.
3. Results: Must be presented in the form of text, tables and illustrations. The contents of the tables should not be repeated in the text. Instead, a reference to the table number may be given. Long articles may need sub-headings within some sections (especially the results and discussion parts) to clarify their contents. Extra or supplementary materials and technical details can be placed in an appendix where it is accessible. It may be omitted from the printed version but may be published in the electronic version of the journal.
4. Discussion: This should emphasize present findings & the variations or similarities

with other work done in the field by other workers. Detailed data should not be repeated in the discussion again. Emphasize the new and important aspects of the study and the conclusions that follow from them. It must be mentioned whether the hypothesis mentioned in the article is true, false or no conclusions can be derived.

5. Conclusion: Should be in line with the objectives and results and should be same as given in abstract.
6. Limitations of the study (if any)
7. Recommendations of the study (if any)
8. Conflict of Interest: When authors submit a manuscript they must disclose all financial and personnel relationship that might bias their work. Authors must state explicitly whether potential conflicts do or do not exist. They should do so in the manuscript on the title page. Additional details can be provided if necessary in a covering letter which accompanies the manuscript. Authors of study funded by an agency with proprietary or financial interest in the outcome must sign a statement that they had full excess to all the data in the study and take complete responsibility for the integrity of the data and the accuracy of the data analysis. This statement should be submitted along with the manuscript.
9. Acknowledgements (if any)
10. References: References must be numbered consecutively according to their appearance in the text. References appearing in a table or figure should be numbered sequentially with those in text. References should be cited in the correct "Vancouver style" with a DOI number. List all authors if the total number of authors is six or less and for more than six authors use et al. after six. Journal names should be abbreviated according to the Index Medicus/MEDLINE. The date of access should be provided for online citations. Fifty Percent References should be last five years and all references listed consecutively as superscript.
    a. Standard journal article.
        i. You CH. Lee KY, Chey WY, Manguy R. Electrogastrographic study of patients with unexplained nausea, bloating and vomiting. Gastroenterology 1980; 79: 311-4.
    b. Chapter in a book:
        i. Weinstein L, Swartz MN. Pathogenic properties of invading micro organisms. In: Sodeman WA Jr, Sodeman WA, eds. Pathologic physiology: mechanisms of disease. WB Saunders, Philadelphia 1974; 457-72.
11. Tables: All tables should be numbered with roman numerals. Headings should be placed above tables, left justified.
12. Figures: All figures should be numbered with numeric numerals. Headings should be placed below figures, left justified.

b. Clinical Case Reports: Must be of academic & educational value and provide relevance of the disease being reported as unusual. It should have a non-structured abstract of about 100-150 words (case specific) with around 5-6 references and 3 keywords.

c. Letters to The Editor (LTE): It is usually a type of short communication that can be written on any topic that attracts the attention of the reader. There are different types of letters to the editor. If the purpose of the LTE is to comment on a published article, the first sentence of the LTE should include the name of the published article's first author along with the title of the published article and then the comments. If the LTE is a reply to a previously submitted LTE, the first sentence should include the name of the letter's author and cite the letter as a reference. The previously published article should then be referenced as well either in the body of the text or at the end of the response to the LTE.

d. Review Article: Should consist of critical overview/ analysis of some relatively narrow topic providing background and the recent development with the reference of original literature. It should incorporate the author's original work on the same subject. The review article should be 2500 to 3000 words in length. It should have a non-structured abstract of 150 words with a minimum of 3 keywords. An author can write a review article only if he/she has written a minimum of three original research articles.

e. Systematic Review Article: It should consist of a well-defined research question and should provide detailed review of a specific topic based on the existing literature. It should include the collection and analysis of data from all the relevant research in support of the research question being asked. The text should be 2500-3000 words. It should have a non- structured abstract with a minimum of three keywords.

f. Meta-Analysis: It should comprise a statistical analysis of combined results of numerous scientific studies addressing the same research questions. Meta-analysis is a quantitative and epidemiological study design that should critically analyze the results of previous scientific researches, mostly randomized controlled trials.

g. Short communication: Short communication or brief report of research works, containing new findings. The short communication consists: Title, Abstract (structured - no more than 150 words), Keywords (max. 5), Introduction, Methods, Results, Discussion, Conclusion, Ethical Consideration, Acknowledgment and References. Short communications should not exceeding 2500 words from introduction through references. Short communications should contain no more than 3000 words totally. The number of tables/ figures should be in maximum 3.

h. Photo Essays: The journal accepts manuscripts for consideration as photo essays. These essays include the visual presentation of material where the prima, emphasis is on the images. These images can include colored images, angiograms, optical coherence tomography, histologic sections, x-rays, ultrasounds, and other studies.

The images can be an outstanding presentation of classic findings, atypical findings or new findings. These are not case reports, but rather a visual presentation of material as a teaching tool. The images need to be of the highest quality. The accompanying manuscript should be limited to a total of 300 words. A maximum of 5 separate images and 5 references can be included. Please refer to the rest of the author's instructions for other requirements for manuscripts submitted to HMDJ.

4. SUBMISSION OF MANUSCRIPT

a. All manuscript should be typed in double spacing on A-4 paper (8.25" x 11.70" = 21.0 cm x 29.70 cm) with one inch (2.5 cm) margin on both sides.
b. All pages must be numbered starting with the title page being page one.
c. Each figure and table must be submitted separately.
d. All manuscripts must be submitted by email to the address:
editor.hmdj@hitec-ims.edu.pk

Answers

Case 1

DIAGNOSIS

Multiple Endocrine Neoplasias type 2B (MEN2B).

Thyroid gland needs to be investigated for malignancy.

BACKGROUND

Multiple endocrine neoplasias type 2B (MEN2B) is an inherited disorder characterized by the development of endocrine malignancies. It results from germline mutations in the RET proto-oncogene and is transmitted in an autosomal dominant fashion. It is characterized by following features:

- Aggressive and penetrant Medullary Thyroid Carcinoma (occurring in 100% of cases)
- Pheochromocytoma (50%)
- Mucosal neuromas (95%-98%)
- Intestinal ganglion neuromas (40%)
- Nearly all patients have a distinct marfanoid habitus

OUR PATIENT

Our patient exhibited a distinct marfanoid habitus with multiple oral mucosal swellings (Fig 1&2) . The biopsy proved these swellings to be neuromas(fig 3). Evaluation of upper GI revealed similar swellings which were not biopsied but are likely to be same. Biopsy of thyroid confirmed a subclinical medullary thyroid carcinoma in early stages. Thyroidectomy was performed with complete cure of the malignancy. RET gene analysis confirmed the mutation. The patient was put on life time surveillance for development of further malignancies.

Cases courtesy:

Brig (R) Prof. Dr. Nasser Rashid Dar

Head of Dermatology Department, HITEC-IMS, Taxila

Case 2

DIAGNOSIS

Multiple Myeloma with Paraneoplastic Addisonian Hyperpigmentation.

BACKGROUND

Paraneoplastic Dermatoses are cutaneous reaction patterns of internal malignancy which are due to different substances secreted by the tumor and resemble a number of dermatoses. There is no actual involvement of the skin with the tumor. Recognition of these changes can be very helpful in early diagnosis internal malignancy or may be the earliest symptom of relapse of a previous cancer. Classical Addisonian pigmentation is seen in Addison's disease and comprises of generalized black brown pigmentation which is accentuated in sun exposed areas, over pressure points and palmar creases. In addition there is nail and oral mucosal pigmentation. This type of pigmentation may also be seen as a paraneoplastic phenomenon in bronchogenic carcinoma as result of secretion of melanogenic substances by the tumor.

OUR PATIENT

Our patient presented to Dermatology Department for evaluation of Addisonian type black brown pigmentation with accentuation over sun exposed sites, oral mucosa, nails and palmar creases (Fig 1). The patient was investigated for Addison's disease. Morning and evening serum cortisol levels were within normal limits. Plain X-rays abdomen did not reveal calcification of adrenal glands. Instead permeative pattern of bone destruction was seen in the lower ribs bilaterally. Their were Multiple lytic lesions in the ribs and vertebrae. X-rays showed lytic lesions in the skull (Fig 2). Diagnosis of multiple myeloma was confirmed on serum protein electrophoresis (Fig 3) and bone marrow. The patient was referred to oncologist for further management

This case was initially suspected to be suffering from Addison's disease on the bases of the characteristic pigmentation but during investigations was found to be suffering from undiagnosed multiple myeloma and there was no evidence of adrenal dysfunction thus highlighting the importance of suspecting para neoplastic dermatoses.

ORIGINAL ARTICLE

GENETIC MUTATIONAL AND EXPRESSION ANALYSIS OF SCAVENGER RECEPTOR CLASS B1 *(SR-B1)* GENE IN TYPE 2 DIABETIC DYSLIPIDEMIC PATIENTS

Tayyaba Batool[1], Asifa Majeed[2]

[1]Department of Biochemistry and Molecular Biology, National University of Sciences and Technology, Rawalpindi Pakistan
[2]Department of Biochemistry and Molecular Biology, Army Medical College, Rawalpindi Pakistan

ABSTRACT

Objective: Genetic mutational and expression analysis of Scavenger Receptor class B1 *(SR-B1)* gene in type 2 diabetic dyslipidemic patients.

Study Design: Cross sectional Comparative study.

Place and Duration of Study: The study was caried out at Army Medical Collage Rawalpindi and took one year to complete.

Material and Methods: Sixty subjects were divided into three groups which were comprised of type 2 diabetic dyslipidemia patients, type 2 diabetic patients without dyslipidemia and healthy individuals. DNA was extracted and DNA sequencing of *SR-B1* gene was performed to find genetic mutation in exon-8. RNA was extracted from blood samples and used in quantitative PCR to analyse the expression of the SR-B1 receptor gene. The comparative ΔΔCT method was applied to quantify the expression in diseased groups and control. BioEdit, and SPSS 17 software was applied to find genetic variation, association and statistical significance.

Results: DNA sequencing of *SR-B1* gene revealed presence of rs5888 (GCC) polymorphism with CC genotype in exon-8 in 18 samples of group I, 3 samples of group II and 2 samples of group III. However, rs5888 polymorphism at position c.1050 did not change the amino acid and was synonymous. The expression of SR-B1 receptor gene was found down-regulated in diabetic dyslipidemia patients compared to diabetic and controls. These patients had shown poor glycemic control and deranged lipid profile where HDL-C was most deranged.

Conclusion: The exon-8 of SR-B1 did not contain any genetic mutation and identified polymorphism rs5888 was a normal variant in diabetic dyslipidmia Pakistani subjects. The expression of SR-B1 receptor gene was down-regulated at transcriptional level which may indicate the disturbance in reverse cholesterol transport and resulted in decreased HDL levels.

Keywords: *Dyslipidemia, HDL, rs5888, SR-B1, type 2 diabetes mellitus*

How to cite this article: Batool T, Majeed A. Genetic mutational and expression analysis of scavenger receptor class B1 *(SR-B1)* gene in type 2 diabetic dyslipidemic patients. HMDJ 2021; 01(01): 3-7

INTRODUCTION

Diabetes mellitus (DM) is spreading as an epidemic and WHO estimated that currently around 422 million people are diabetic[1] worldwide. Diabetes mellitus leads to the formation of potentially harmful products including "acetylated and glycated LDL, advanced glycation end products, reactive oxygen species as well as chemokines and cytokines"[2]. Plasma high-density lipoprotein plays a role in the determination of risk for cardiovascular diseases through selective uptake of cholesterol ester and maintains the cholesterol homoeostasis in human body. Environmental and genetic factors contribute to the change of HDL-C levels.

Correspondence to: Dr. Tayyaba Batool, Deptt of Biochemistry Quaid -e-Azam Medical Collage, Bahawalpur, Pakistan.
Email: drtayyababatool@yahoo.com

Conflict of interest: None

Financial Disclosure: Funded by National University of Sciences & Technology (NUST).

Received: 30-06-2021
Accepted: 15-08-2021

HDL-C mediates reverse cholesterol uptake (RCT) through transmembrane protein "scavenger receptor SR-B1". Scavenger receptor class I B type (SR-BI) is highly expressed in steroidogenic, intestinal, and hepatic cells. SR-BI has high binding affinity with HDL and regulates the selective HDL cholesterol efflux[3,4]. SR-BI protein is encoded by *SR-B1/SCARB1* gene which is located on chromosome 12 [5]. Expression of SR-B1 in cholesterol uptake was well studied in mice where overexpression of *SCARB1* gene protected against atherosclerosis[6]. Genetic variations in *SCARB1* and *ABCA1* gene have been directly correlated with HDL-C levels[7-9]. Studies have identified association between genetic variants in *SCARB1* gene, body mass index, lipid levels and lipoprotein particle[10-12]. SR-B1 is demonstrated as a key regulator of circulating HDL levels and genetic variations in *SCARB1* gene lead to disturbance in hepatic cholesterol uptake[13-15].

Pakistan is ranked 7th in the world with 7.1million people (7.6%) affected by diabetes. The statistics may get rise to 13.8 million people with diabetes in 2030[16]. Dyslipidemia is a prevailing complication in diabetic patients in Pakistan[17,18,19]. Abnormalities in concentration of plasma lipid and lipoproteins

HITEC Institute of Medical Sciences
Taxila Cantt
www.hitec-ims.edu.pk
Contact: 051-4908582