Volume : 18 Issue : 01 July : 2024 ISSN : 1800 - 4903

BATTICALOA MEDICAL JOURNAL

The Journal of the Batticaloa Medical Association

BATTICALOA MEDICAL JOURNAL

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Submissions are accepted year-round, but the journal is published biannually.

webpage : www.batticaloamedicaljournal.com

All communication should be addressed to:
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Printed by:
Evergreen Printers (PVT) LTD
#22, Lloyd's Avenue, Batticaloa
+94 652222607 / +94 652224269

Established in 2005
An official publication of the
Batticaloa Medical Association
Volume 18 (01), July 2024
Biannually ISSN 1800-4903

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Published by

The Batticaloa Medical Association

2nd Floor, New OPD Complex

Teaching Hospital

Batticaloa.

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024

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BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024

ISSN 1800- 4903

Editorial

Overcoming Moral Challenges in the Medical Profession

Professionalism and ethics are two essential virtues of a doctor. The importance of including them in medical curricula is being increasingly realised. For instance, the competency based curriculum implemented by the National Medical Commission, India in 2019 has introduced a module in attitude, ethics and communication skills (AETCOM) right from the first professional year till the end. All medical schools in Sri Lanka too have modules on ethics and professionalism. The Sri Lanka Medical Council (SLMC) provides two main guidelines to all medical practitioners upon their registration, namely "**Guidelines on Ethical Conduct for Medical and Dental Practitioners**" and "**Instructions on Serious Medical Misconduct**". Nevertheless, professionalism and ethical conduct are active and effortful processes needing full commitment and conscientiousness from the practising doctor.

The society expects trust, truth and human values from medical practitioners and educators. Recent times have seen many commentaries on the "medical mafia" in social media, where doctors have been criticised for misconduct. Although many of these allegations lack true evidence of misconduct, incidents of serious ethical misconduct by doctors do not appear in the media and courts, due perhaps to the tradition of respect towards doctors or the power imbalance between doctors and patients. However, even a few incidents of reported professional misconduct can significantly affect the entire health system in the country, occasionally even leading to violence and trade union action.

I would like to look into three aspects of conduct which pose challenges to a doctor's professional, ethical and moral bearing, namely time management, fairness and courteousness. Paying mindful attention to these would guide a doctor to overcome most moral challenges they face.

Most doctors, especially consultants feel that they do not have adequate time, and a doctor is always seen as a "busy" person to the public eye. A study done by Ranasinghe et al in 2009 among doctors in Kandy showed that one-fourth of the participants reported that they knew two habitual latecomers out of five fellow practitioners, which indicates at least 10% doctors come late to their duties. Starting work on time and spending the stipulated working time in our workplaces would not only improve our service to the community but also uplift our professional, moral and ethical conduct. This expectation by the public from a medical professional is reasonable.

Honesty, integrity and accountability are some basic virtues that are expected in a doctor. These qualities in a person lead to fair treatment of all patients. Thirty-seven per cent of the participants in Ranasinghe's study strongly agreed to the statement "the quality of service of the doctor in the government hospital is negatively affected by his/her private practice", highlighting the importance of consciously treating all patients in a just and impartial manner.

Nepotism and favouritism should be avoided at all cost by doctors involving in examinations. In Ranasinghe's study the majority of the participants (60%) strongly disagreed to the statement "Favouritism to students in medical exams are rare." This is a rather disturbing finding though some of us may have witnessed favouritism to certain candidates and unfair treatment to certain others in undergraduate, postgraduate and licensing medical examinations. We should always defy such behaviour.

"I wish doctors behaved in the same manner in the General Hospital as they do in the Private Practice!" is a statement I often hear from my non-medical friends. This statement implies that many doctors are rude, speak inconsiderately or not speak at all to patients in the government hospitals. This is an unhealthy attitude, which is negative to our professionalism. Fortunately 70% of the doctors in Ranasinghe's study strongly agreed to the statement "under no circumstance, a doctor has the right to

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shout at a patient", indicating the majority have the correct attitude, and only need to follow it diligently .

Almost 80% of the participants in the above study strongly agreed to the statement "juniors tend to follow their consultants' attitude in patient care." emphasizing the importance of appropriate professional conduct and ethical and moral behavior of consultants in role modelling junior doctors.

With the spectacle around us unfolding, let us take a moment to reflect our own professional and ethical conduct, and make an active effort to follow the guiding principles set down for us.

Dr Angela Arulpragasam Anthony
Chief Editor
Batticaloa Medical Journal.

Bibliography

1. Medical ethics: knowledge, attitude and practice among doctors in three teaching hospitals in Sri Lanka A. W. I. P. Ranasinghe, Buddhika Fernando, Athula Sumathipala and Wasantha Gunathunga, BMC Medical Ethics (2020) 21:69 *https://doi.org/10.1186/s12910-020-00511-4*
2. Medical Professionalism and Ethics, Mira K. Desai, Jigar Dilipkumar Kapadia, Journal of Pharmacology and Pharmacotherapeutics 13(2) 113–118, 2022

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024
ISSN 1800- 4903

Original Paper

Clinical presentation and aetiology of pleural effusion among patients with chronic kidney disease referred to the Respiratory Unit of National Hospital, Sri Lanka

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Abstract:

Identification of pleural effusion patterns among chronic kidney disease patients is helpful in the early detection and management and in implementing preventive measures to reduce the occurrence of pleural effusion in CKD patients. The objective of this study is to describe the clinical presentation and aetiology of pleural effusion among chronic kidney disease patients referred to the Respiratory Unit of National Hospital Sri Lanka (NHSL).

A hospital-based prospective study was carried out among patients referred to the Respiratory Unit of NHSL from November 2020 to May 2021. Data were obtained by history taking, clinical examination and from investigation reports.

A total of 48 patients were recruited. The mean age was 55.4 years. The male-to-female ratio was 1.5:1.0. About 95% of patients had diabetes or hypertension as a comorbidity. The majority of effusions were unilateral (83%), and moderate in size (58%). About 33.3% of cases were due to transudative effusion and caused by fluid overload, heart failure or hypoalbuminemia. The remaining 66.7% of effusions were exudative. TB pleural effusion, parapneumonic effusion, lung cancer and non-specific pleuritis were the causes of exudative effusion.

Many pleural effusions were preventable. Improving access to haemodialysis, infection preventive measures, personal hygiene and improving nutritional status could be beneficial in the prevention of pleural effusion.

Keywords: Pleural effusion, chronic kidney disease, tuberculosis, parapneumonic effusion

Introduction

Chronic kidney disease is a progressive condition characterised by structural and functional alterations in the kidney due to various causes which are persist for at least three months (1). According to the 2017 Global Burden of Disease (GBD) study, the total number of people with all stages of chronic kidney disease (CKD) reached about 700 million globally, with a global prevalence of 9.1% (2).

In Sri Lanka, CKD is rapidly becoming a significant public health problem. In 2020, diseases of the urinary system including CKD were the third leading cause of hospital admission and the seventh leading cause of death in Sri Lanka (3).

CKD is mostly caused by diabetes, hypertension, and glomerulonephritis. Several cases of CKDs unrelated to common risk factors have been identified, particularly among middle-aged farmers over the past two decades. These cases have been categorised as CKD of unknown aetiology (CKDu) (1,4).

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The occurrences of CKD complications are growing due to an increase in the number of CKD patients and the lengthening of life expectancy (5). Pleural effusion is a common complication in patients with chronic kidney disease, especially in end-stage chronic kidney disease (6). The incidence of pleural effusion was 6.74% among stage 3-5 CKD patients and 5.88% among post-transplant patients (7). It can be caused by renal or non-renal causes, and it may worsen the CKD condition.

The aetiology of pleural effusion in patients with CKD varies across countries due to differences in prevalence and medical care. This study aimed to identify the aetiology and clinical presentation of pleural effusion among patients with CKD referred to the National Hospital, Sri Lanka. This study enhances our understanding of the aetiology and clinical presentation of pleural effusion, which can be utilized to improve the medical care provided to patients with CKD.

Methods

Study design, setting and patients

A hospital-based descriptive cross-sectional study was conducted at the Respiratory Unit of National Hospital, Sri Lanka, a tertiary care centre with renal transplantation facilities, and it receives referrals mainly from the National Institute of Nephrology, Dialysis and Transplantation (NINDT) and Central Chest Clinic. All CKD patients with pleural effusion who were referred to the facility between November 2020 and May 2021 were included in the study.

Data collection and determine the aetiology of pleural effusion

Data were collected by taking history, medical examination, reviewing available medical records and investigations reports (investigations were conducted as part of standard care and no additional investigations were carried out for this study). The side and size of the effusion and the lung and heart appearance were assessed by chest x-ray. All the referred patients underwent an ultrasound scan. Ultrasound scan guided thoracentesis was carried out by a Consultant Respiratory Physician or Senior Registrar and samples were sent for the full report, cytology, Gram stain, direct smear for acid-fast bacilli, bacterial and TB culture. Transudative and exudative effusions were decided based on Light's criteria.

Transudative effusion with clinical features, CXR findings, and echocardiogram features were used to diagnose heart failure. The pleural effusion due to parapneumonic effusion was diagnosed if there is exudative neutrophilic pleural effusion with other clinical, radiological features and bacteriological findings. The TB pleural effusion was diagnosed with a lymphocytic exudative effusion with an ADA greater than 40 with or without microbiological evidence (acid-fast stain and culture). In a patient with low ADA (<40), a diagnosis of TB pleural effusion was made based on histological and/or microbiological evidence. Patients with a lymphocytic exudative effusion with an ADA less than 40, or mass lesion in CXR, atypical or malignant cells in pleural fluid cytology, underwent further investigations such as thoracoscopy and bronchoscopy pleural biopsy and contrast-enhanced computed tomography to confirm the diagnosis.

Statistical analysis

The statistical analysis was conducted using IBM SPSS version 26.0. (8). Categorical variables were described using counts and percentages. Continuous variables were expressed as the mean and standard deviation. Student t-test was used to compare the mean between groups. A p-value less than 0.05 was considered statistically significant.

Results

Patient characteristics

A total of 48 patients were recruited during the study period. The majority of patients were males (n=29; 60.4%). The male: female ratio was 1.5:1.0. The mean age was 55.37 years (SD 12.7), The number of patients in the age groups of less than 41, 41-60, 61-80, and more than 80 years were 7 (14.6%), 27 (56.3%), 12 (25.0%), and 2 (4.2%) respectively.

CKD stage and comorbidities

More than half of the CKD patients with pleural effusion referred to the Respiratory Unit of NHSL had end-stage chronic kidney disease (n=27; 56.3%). The rate of pleural effusion in stage 2 (n=7; 14.6%), stage 3 (n=8; 16.7%), and stage 4 (n=6; 12.5%) were similar, whereas none of the patients was in stage 1. All 27 patients with end-stage CKD were on haemodialysis, with 17 of them getting regular dialysis. About 95% of patients had diabetes or hypertension, whereas nearly 45% of patients had diabetes and hypertension.

Table 1: Comorbidities among CKD patients

Comorbidities	(n)	(%)
Hypertension	36	75.0
Diabetes	33	68.8
Ischemic heart disease	21	43.8
Connective tissue diseases	1	2.1
Malignancy	1	2.1
Chronic liver cell disease	0	0

Clinical presentation

The most common presenting complaints among referred patients were shortness of breath (60.4%) and chest pain (54.2%). Other presenting complaints were fever, cough, and oedema. One patient was incidentally found to have pleural effusion. On examination, all the patients had clinical evidence of pleural effusion.

Symptoms	(n)	(%)
Shortness of breath	29	60.4
Chest pain	26	54.2
Cough	13	27.1
Oedema	16	33.3
Fever	11	22.9
Incidental finding	1	2.1

Size and side of pleural effusion

The x-ray revealed 40 (83.3%) unilateral effusions and 8 (16.7%) bilateral effusions. In unilateral effusion, there were 25 right-sided effusions and 15 left-sided effusions. Many of the effusions (58.3%) were moderate in size.

Type of pleural effusion

The pleural fluid analysis was performed in all 48 patients. There were 16 (33.3%) transudative effusion and 32 (66.7%) exudative effusion. Out of 32 exudative pleural effusions, 12 were neutrophilic and 20 were lymphocytic effusions. All transudative effusions were lymphocytic. Out of a total of 40 unilateral effusions, 32 (80%) were caused by exudative effusion, whereas all eight bilateral effusions were caused by transudative effusion.

Adenosine deaminase (ADA) and Lactate dehydrogenase (LDH)

The mean ADA was 30.1 (SD 33.0). Among patients with exudative pleural effusion, 17 (53%) had ADA more than 40. Nine patients with lymphocytic exudative effusion had an ADA of more than 40. In neutrophilic exudative effusion, 8 had ADA more than 40. All the patients with transudative pleural effusion had an ADA of less than 40.

The mean LDH was 746.9 U/L. Ten exudative pleural effusions had the LDH more than 1000 U/L and all the transudative effusions had less than 1000 U/L.

Table 3: LDH in exudative pleural effusion

Effusion type	≤500 u/l	501-1000 u/l	>1000 u/l	Total
Neutrophilic effusion	2	3	7	12
Lymphocytic effusion	7	10	3	20
Total	9	13	10	32

Other investigations

In cytological examination of pleural fluid, two patients had atypical cells. The gram stain was negative in all cases. Acid Fast Bacilli direct smear, pleural fluid for TB culture) were all negative. Contrast-enhanced computed Tomography (CECT) was carried out in 22 patients who were with exudative pleural effusion with ADA less than 40, malignancy suspected patients, and clinically indicated patients.

Eleven patients with exudative lymphocytic effusion with ADA less than 40 and two patients with exudative lymphocytic effusion with ADA more than 40 having massive pleural effusion underwent thoracoscopy. Among pleural biopsies of exudative lymphocytic effusion with ADA less than 40, four had chronic inflammation with granuloma development, suggestive of tuberculosis, and another four had malignancies. The remaining three pleural biopsies indicated nonspecific chronic inflammation with no granuloma or malignant characteristics. Pleural biopsies of two exudative lymphocytic effusions with ADA of more than 40 were suggestive of pleural TB. AFB direct smear of pleural biopsy did not identify evidence of Mycobacterium tuberculosis in any case. Mycobacterium tuberculosis was detected in four cases in TB culture and nucleic acid amplification test (GeneXpert) of pleural biopsy. The bronchoscopy was carried out among 4 patients who had suspicious lesions and adenocarcinoma was identified in 4 cases.

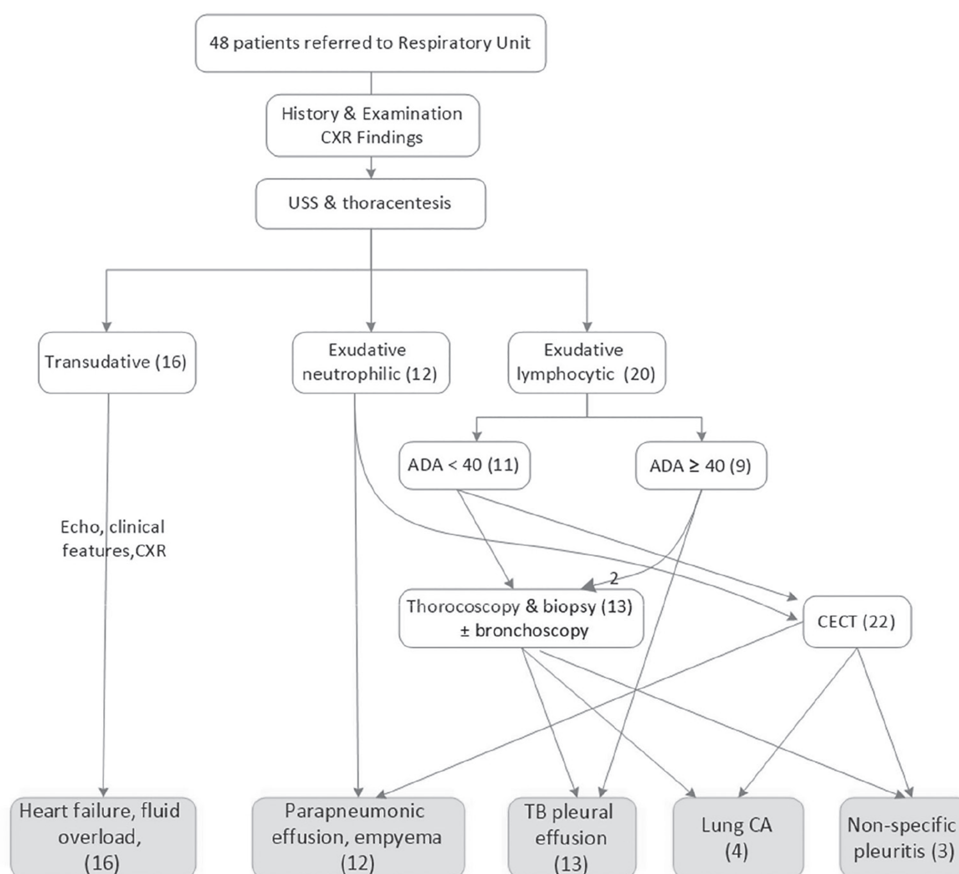

Figure 1: Diagnosis of pleural effusion

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Aetiology of pleural effusions in patients with CKD

There were 32 exudative effusion and 16 transudative effusions. TB pleural effusion and parapneumonic effusion were the common causes of exudative pleural effusion. There was no definitive diagnosis in three exudative lymphocytic effusions, and they were classified as 'non-specific effusions'. In transudative effusions, seven had both fluid overload due to CKD and features of heart failure. There were 4 patients with hypoalbuminemia, but they also had fluid overload and heart failure.

Table 4: Characteristics of pleural effusions

Feature	TB plural effusion	Parapneumonic effusion	Empyema	Malignancy	Non- specific effusion	Transudative effusion
Number (n)	13	10	2	4	3	16
Mean age (yrs)	52.7	49.0	59.5	62.3	48.7	60.6
Pleural fluid appearance (mode)	Turbid	Yellow	Yellow turbid/ pus	Yellow	Turbid	Yellow
Neutrophils (mean)	60.3	6175.0	14700	83.5	53.3	51.4
Lymphocytes (mean)	928.0	278.2	477.5	600.3	190.0	239.2
ADA (mean)	44.1	33.73	129.2	27.9	12.8	7.8
LDH (mean)	608.0	1281.3	4675.5	870.0	218.0	103.1

Discussion

Most of the referred CKD patients with pleural effusion were male and aged between 41-60 years, and the majority were in end-stage CKD. Many of them had diabetes and hypertension as comorbidities. Unilateral effusion, especially on the right side, was the most common type of effusion.

The mean age was 55.4 years, which is closer to the mean age of a population-based cross-sectional study conducted among 1174 CKD patients from all 19 Medical Officer of Health areas in the district of Anuradhapura. Like other studies (9, 10), effusion was more common among males.

Several studies have reported that transudative effusion was the most common type of effusion among CKD patients (9-11). However, in this study, exudative effusion was more common than transudative effusion similar to the finding of Kumar et al., (12) and Uzan and İkitimur (13). This study was conducted at the respiratory unit among patients referred from nephrology wards and clinics. Most cases with uncomplicated bilateral effusions caused by heart failure and fluid overload were not referred to the respiratory unit and this could be the reason for a reduced number of transudative effusions in this study.

Heart failure, fluid overload, and hypoalbuminemia are the most common causes of transudative effusion, however, these conditions are often present combined in patients with CKD, making it difficult to define the cause of transudative effusion.

The respiratory unit was selected instead of the nephrology unit for this study as more exudative effusion patients could be recruited in a short period and comprehensive data would be collected regarding investigation. The limitation of this study was the small sample size resulting from the covid pandemic and lockdown measures imposed during the data collection period. It caused a significant drop in attendance of non-covid patients to the hospitals. Another limitation was that the incidence of pleural effusion among CKD patients could not be estimated. The rate of exudative effusion calculated in this study may be higher than those in other studies because our study sample is a subset of CKD patients. Therefore, when generalising the findings, this fact should be considered.

Conclusion

In conclusion, most of the unilateral effusions were caused by exudative effusion. Infection is the most common cause of exudative effusions. Therefore, if a patient has a unilateral effusion, further investigations should be conducted to determine the aetiology. As many of the patients had effusion due to infective cause, necessary measures should be taken to prevent the infection among CKD patients, such as providing health education on self-care and personal hygiene, nutritional support and vaccination.

References

1. Kalantar-Zadeh K, Jafar TH, Nitsch D, Neuen BL, Perkovic V. Chronic kidney disease. The lancet. 2021;398(10302):786-802.
2. Bikbov B, Purcell CA, Levey AS, Smith M, Abdoli A, Abebe M, et al. Global, regional, and national burden of chronic kidney disease, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. The lancet. 2020;395(10225):709-33.
3. Ministry of Health. Annual Health Bulletin 2020. Colombo, : Medical Statistics Unit, Ministry of Health; 2023.
4. Senanayake S, Gunawardena N, Palihawadana P, Bandara P, Haniffa R, Karunarathna R, et al. Symptom burden in chronic kidney disease; a population based cross sectional study. BMC Nephrol. 2017;18(1):228.
5. Bakirci T, Sasak G, Ozturk S, Akcay S, Sezer S, Haberal M, editors. Pleural effusion in long-term hemodialysis patients. Transplantation proceedings; 2007: Elsevier.
6. Seo HM, Kim M, Kim H. Refractory exudative pleural effusion in patients with chronic kidney disease not receiving dialysis: A case report. Clin Case Rep. 2019;7(4):675-9.
7. Kundu S, Mitra S, Ray S, Mukherjee S, Mitra R, Ganguly J. Pleural effusion in chronic kidney disease: An ongoing dilemma. European Respiratory Journal. 2012;40(Suppl 56):P583.
8. IBM Corp. IBM SPSS Statistics for Windows. 27.0 ed. Armonk, NY: IBM Corp; 2020.
9. Ray S, Mukherjee S, Ganguly J, Abhishek K, Mitras S, Kundu S. A cross-sectional prospective study of pleural effusion among cases of chronic kidney disease. Indian J Chest Dis Allied Sci. 2013;55(4):209-13.
10. Virupakshappa V, Sathyanarayan T, Nagabhushana S, Aravinda C. Profile of pleural effusion in chronic kidney disease patients undergoing hemodialysis. Indian Journal of Immunology and Respiratory Medicine. 2017;2(4):103-7.
11. Rashid-Farokhi F, Pourdowlat G, Nikoonia MR, Behzadnia N, Kahkouee S, Nassiri AA, et al. Uremic pleuritis in chronic hemodialysis patients. Hemodial Int. 2013;17(1):94-100.
12. Kumar S, Agarwal R, Bal A, Sharma K, Singh N, Aggarwal AN, et al. Utility of adenosine deaminase (ADA), PCR & thoracoscopy in differentiating tuberculous & non-tuberculous pleural effusion complicating chronic kidney disease. Indian J Med Res. 2015;141(3):308-14.
13. Uzan G, İkitimur H. Pleural Effusion in End Stage Renal Failure Patients. Sisli Etfal Hastan Tip Bul. 2019;53(1):54-7.

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024
ISSN 1800- 4903

Original Paper

The impact of menopausal symptoms on female healthcare workers

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Abstract:

Menopause is a natural biological process that affects a woman's physiological, psychological and social well-being. This study is focused on assessing the knowledge and perception of menopause among women and the impact of menopausal symptoms on a woman's life.

The purpose of this study was to describe the impact of menopausal symptoms on the routine life among female healthcare workers over 40 years in Teaching Hospital Batticaloa.

A Descriptive Cross-Sectional study was conducted from October 2020 to September 2021 among 170 female healthcare workers over 40 years in Teaching Hospital Batticaloa. Complete enumeration was used as a sampling method and a pre-tested, self-administered questionnaire was used to collect data. Statistical Package for the Socia l Sciences 25 (SPSS V.25) was used to enter and analyze the data.

A total of 170 healthcare workers completed the questionnaire. Of the sample, 32.9% were between 45 and 49 years and 30% of the total population was in post-menopausal stage. The negative and positive attitudes regarding menopause were almost equal. Although 79.4% of women complained of suffering from menopausal symptoms, the study did not show that it affected their work and life significantly. It was noted that more women reported menopausal symptoms affecting their personal lives compared to their professional lives.

Although the majority of women over 40 years suffered from menopausal symptoms, they did not report discomfort or interference of their symptoms with their profession. Creating awareness of menopausal symptoms and their management among women and, providing physical and psychological support for menopausal women are recommended.

Keywords: female healthcare workers, menopause, menopausal symptoms, perception

Introduction

Menopause is a natural biological process and often an unspoken milestone in a woman's life. The most significant feature of menopause is the cessation of menstruation. Menopause leads to a transition of an individual from a reproductive state to a non-reproductive one. As a woman lives at least one-third of her productive life beyond menopause it should be given due importance to the health system and its policies (Al-Shboul, Smail, & Jassim, 2017). Society normally ignores the significance of menopause, despite the significant physiological and psychological changes that women undergo during this period.

The exact age of menopause varies from population to population worldwide. Generally, the average age

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is 50 years and ranges between 40-60 years (Perera & Goonewardena, 2020).

Conventionally menopause is described under three phases. The time up to the last regular menstrual period is called **pre-menopausal** phase. The time around the cessation periods (menopause), where a series of menstrual irregularities and endocrine changes occur is described as the **peri-menopausal /menopausal transition** phase. The post-menopausal phase is recognized after 12 months of amenorrhea (Perera & Goonewardena, 2020)

According to the WHO Technical Report, the term menopause could be defined as the permanent cessation of menstruation resulting from loss of ovarian follicular activity. Natural menopause is recognized to have occurred after 12 consecutive months of amenorrhea, for which there is no other obvious pathological or physiological cause. Furthermore, the report states that the term menopause includes the cessation of menstruation which follows surgical hysterectomy and iatrogenic abolition of ovarian function as well. Loss of ovarian function is an essential characteristic of the concept of menopause so the term surgical menopause should be confined to the procedure of bilateral oophorectomy, with or without hysterectomy *(WHO_TRS_670.Pdf, n.d.).*

Menopausal transition causes several long-term complications such as osteoporosis, cardiovascular diseases, breast cancers and post-menopausal bleeding (Sultan, Sharma, & Jain, 2017). Menopausal symptoms may affect the day to day life and cause severe distress to the individuals. Hormone Replacement Therapy (HRT) is considered a safe treatment for minimization of the above menopausal symptoms. This study was designed in hopes of getting an insight into issues related to menopause in working women, especially those in the healthcare field, and to make recommendations to support them in their workplaces.

A descriptive cross-sectional study was conducted to evaluate prevalence and severity of menopausal symptoms and the quality of life in the middle-aged women among 30-60 years from Galle district in Southern province in Sri Lanka. It showed that the prevalence and the severity of menopausal symptoms and impaired quality of life (QOL) were significantly higher among postmenopausal women, compared to premenopausal women. Menopausal symptoms mostly contributed to the poor QOL in both pre and postmenopausal women. (Rathnayake, Alwis, Lenora, & Lekamwasam, 2019).

A study was conducted to determine the relationship between frequency and intensity of menopausal symptoms and quality of life among 334 Polish nurses. In that 158 were aged 25 - 35 and 176 aged 45 -55. The finding of the study showed nurses in the 25 - 35 age group achieved a higher level of satisfaction with their overall quality of health than the nurses from the 45 - 55 age group who experienced menopausal symptoms. Quality of life was significantly negatively connected with the frequency and intensity of menopausal symptoms (Kupcewicz, Drężek–skrzeszewska, Roszuk, & Jóźwik, 2021).

Objectives

The general objective of this study was to describe the impact of menopausal symptoms on routine life among female healthcare workers over 40 years in Teaching Hospital Batticaloa.

Methodology

It is a descriptive cross-sectional study conducted at the Teaching Hospital Batticaloa. According to the details collected from wards and units, the total number of women above 40 years was 230. A total enumeration method was followed.

The inclusion criterion was female healthcare workers attached to Teaching Hospital Batticaloa, who were over forty years of age. Women who had undergone unnatural menopause due to hysterectomy and bilateral oophorectomy and those on chemotherapy for any malignancy were excluded.

The face validity and content of the questionnaire assessed by individual experts such as a Senior House Officer from the University-Obstetrics and Gynecology Unit, Teaching Hospital Batticaloa, a Medical Officer of Health, MOH Batticaloa and a Public Health Nursing Sister of MOH office, Batticaloa

Data was collected using a self-administered questionnaire which was developed according to WHO guidelines and previous studies. The reliability was checked using Cronbach's alpha test. The reliability was more than 0.7 in each section.

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Results

A total of 200 women fitting the inclusion criteria were approached, 179 participated with a response rate of 89.5%. Nine responses were removed due to incomplete data. Finally, 170 female health care workers completed the survey. Most of the health care workers in this study were in the age group of 45- 49 (32.9%). Majority of health care workers were married (91.8%) and Tamil (82.4%). Less than half (42.4%) of the participants had completed diploma level. Nearly half of the population were pre-menopause women 48.2% (82), 21.8% (37) were peri-menopausal and 30 % (51) were in post-menopause stage.

Figure 1 shows the distribution of the perception of menopause among the participants, and Table 1 gives the details of distribution of the items tested. Most (55.3%) reported a positive perception about menopause.

Figure 1: Perception level

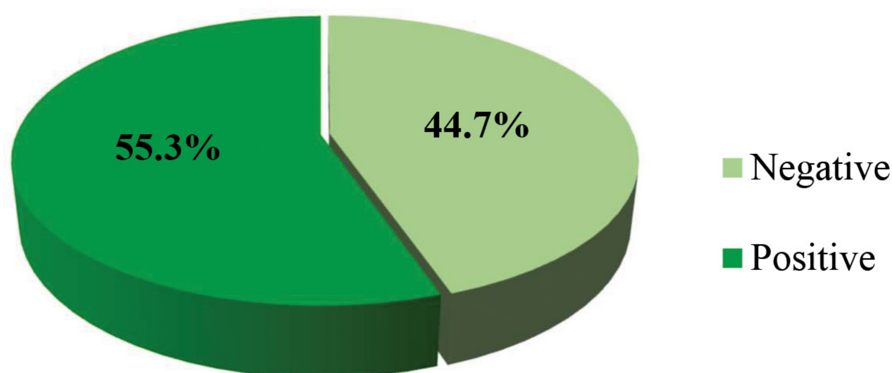

Table 1: Perception towards menopause

Statements (n=170)	(n)	(%)
Positive perceptions		
Life is easier and calmer after menopause	80	47.1
It is a normal event and not a problem	83	48.8
A woman gets more confidence in herself after menopause	83	48.8
Menopause means no more worry about contraception	89	52.4
Women are generally feeling better after menopause	85	50
Negative perceptions		
Menopause means loss of femininity	87	51.2
Menopause is the period of women's loneliness	74	43.5
Menopause means loss of youth and beginning of the end of life	79	46.5
Menopause decreases the grace of women's appearance	90	52.9
It affects women's wellbeing	96	56.5

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Table 2 gives the details of the menopausal symptoms experienced. Joint and muscular problems were the commonest symptom (45%) among the pre-menopausal women, while hot flushes were the commonest in the peri-menopausal women. Seventy percent of the post-menopausal women reported hot flushes and 82% reported joint and muscular pain.

Table 2: Frequency of menopausal symptoms experienced

Symptoms (n=170)	Current Menstrual Status					
	Pre menopause (n=82)		Perimenopause (n=37)		Post menopause (n=51)	
	N	%	N	%	N	%
Hot flushes, sweating	26	31.7	25	67.6	36	70.6
Heart discomfort	12	14.6	8	21.6	20	39.2
Sleep problems	20	24.4	20	54.1	29	56.9
Depressive mood	19	23.2	9	24.3	22	43.1
Irritability	26	31.7	15	40.5	26	51.0
Anxiety	10	12.2	12	32.4	23	45.1
Physical and mental exhaustion	18	22.0	12	32.4	25	49.0
Sexual problems	8	9.8	4	10.8	12	23.5
Bladder problems	8	9.8	6	16.2	15	29.4
Dryness of vagina	13	15.9	8	21.6	26	51.0
Joint and muscular discomfort	37	45.1	26	17.3	42	82.4

Table 3 and Table 4 show the impact of menopausal symptoms in the occupation and personal lives of the participants respectively. The results show that the majority felt that these symptoms had no impact on their daily living.

Table 3: The impact of menopausal symptoms on the occupation

Statements (n=170)	Never		Rarely		Sometimes		Often		Always		P value
	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	
Experience menopausal symptoms while carrying out your duties at hospital	89	52.4	28	16.5	41	24.1	11	6.5	1	0.6	0.000
Take frequent leaves rather than earlier due to menopausal symptoms	117	68.8	26	15.3	25	14.7	2	1.2	0	0.0	0.000
Feel tired than earlier while you are working due to menopausal symptoms	75	44.1	34	20.0	32	18.8	26	15.3	3	1.8	0.000
Feel your working capacity has reduced than previous due to menopausal symptoms	100	58.8	21	12.4	28	16.5	18	10.6	3	1.8	0.000
Feel angry with co-staff than previous because of the stress due to the menopausal symptoms	121	71.2	18	10.6	22	12.9	6	3.5	3	1.8	0.000
Easily get angry with patients than previous because of the stress due to the menopausal symptoms	138	81.2	16	9.4	11	6.5	4	2.4	1	0.6	0.000

Unable to carry out duties carefully as usual than previous due to the menopausal symptoms	125	73.5	17	10.0	23	13.5	5	2.9	0	0.0	0.000
Have higher intention to quit your job than previous due to the menopausal symptoms	128	75.3	12	7.1	21	12.4	6	3.5	3	1.8	0.000

Table 4: The impact of menopausal symptoms on personal life

Statements (n=170)	Never		Rarely		Sometimes		Often		Always		P value
	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	
Day to day activities are interrupted by menopausal symptoms.	76	44.7	46	27.1	20	11.8	26	15.3	2	1.2	0.000
Easily get angry with my family members than previous due to the menopausal symptoms.	65	38.2	47	27.6	19	11.2	37	21.8	2	1.2	0.000
Easily get tired while carry out my day today activities than previous due to the menopausal symptoms.	60	35.3	32	18.8	19	11.2	47	27.6	12	7.1	0.000
Have difficulties while lifting heavy objects, climbing stairs, bending, kneeling than previous due to the menopausal symptoms.	56	32.9	24	14.1	9	5.3	66	38.8	15	8.8	0.005
Loss my sexual desire than previous due to the menopausal symptoms.	64	37.6	47	27.6	20	11.8	35	20.6	4	2.4	0.000
Unable to sleep adequately during nighttime due to the menopausal symptoms.	61	35.9	41	24.1	16	9.4	42	24.7	10	5.9	0.000
Unable to do day today activities (cooking, washing, cleaning) as carefully as usual due to the menopausal symptoms.	72	42.4	58	34.1	17	10.0	21	12.4	2	1.2	0.000
Tend to be isolated from others due to the menopausal symptoms.	87	51.2	61	35.9	12	7.1	8	4.7	2	1.2	0.000

Discussion

Only a little more than half (55.3%) of the study population had a positive perception towards menopausal transition. While half of them opined that menopause is a normal event and not a problem, a substantial number of women had negative views such as menopause indicating the loss of youth, femininity and the end of life. Although our participants are from the health sector and represent a higher level of education than the community in general, they did not elicit a positive attitude towards menopause as expected. Therefore, programmes to cultivate a positive outlook towards post-menopausal life are needed in middle-aged women, to enrich their lives.

The present study revealed that physical symptoms were more prominent among respondents compared

to psychological and urogenital symptoms. The high prevalence of joint and muscular discomfort is consistent with previous study findings conducted in Sri Lanka (Waidyasekera et al., 2009); whereas a study from Pakistan showed commonest symptoms were backache, body ache and insomnia (Nusrat et al., 2008). Failure to express the urogenital and sexual effects of menopause could also be due the lack of understanding of menopause by women. This want of insight may lead to interpersonal relationship in the workplaces as well as their family lives.

This study reported that symptoms were most prevalent among post-menopausal women compared to pre and peri-menopausal women. This result was similar to the studies done by Sri Lanka in 2009 (Waidyasekera et al., 2009), 2019 (Rathnayake, Lenora, Alwis, & Lekamwasam, 2019) and 2020 (Perera & Goonewardena, 2020). This draws our attention to the support needed for this group, such as availability of rest room, refreshment facilities etc.. in their places of work.

In this study, women did not report any significant impairment in routine duties in their workplaces, despite their physical discomfort. This is in contrast to another study done among middle- aged women in Sri Lanka which showed that menopausal symptoms have a high impact on routine life of both pre and post-menopausal women (Rathnayake, Lenora, et al., 2019). This may be because women in the healthcare workforce are attuned to be more tolerant to physical and mental discomfort. This finding may be different if conducted in another setting. This observation too may be due to the lack of insight by women to their discomfort and disability, or a denial that they are unable to do their tasks as before. A different approach such as a focal group discussion or open interview may have given rise to a more reliable finding.

It is worthy to note that more women have reported "often" and "always" to problems faced due to menopausal symptoms in their personal lives than in their working environment. This may indicate the difficulties in coping with the physical and mental discomforts of menopause in face of higher responsibilities in the home ground, compared to the workplace. For these women, the workplace may actually provide a relief from the burdens at home. However, it also shows women need understanding and support from their family members and co-workers during the menopausal period.

Conclusion

A significant proportion of women had a negative perceptions towards menopause. Post-menopausal women experienced significantly higher menopausal symptoms. While the majority acknowledged experiencing menopausal symptoms, the study failed to prove a significant impact of these symptoms on their routine life.

Recommendation

Creating awareness of menopausal symptoms and their management among women and, providing physical and psychological support for menopausal women are recommended.

Limitation

This is a quantitative study where a structured questionnaire with limited options was used. A qualitative study would have elicited a better perspective of the problem. Further, data collection was done during working hours and some participants may not have had enough time nor would have been in the appropriate mood to respond to the questionnaire realistically.

References

1. ADonati, S., Cotichini, R., Mosconi, P., Satolli, R., Colombo, C., Liberati, A., & Mele, e. A. (2009). Menopause: Knowledge, attitude and practice among Italian women. Maturitas, 63(3), 246–252. https://doi.org/10.1016/j.maturitas.2009.04.001
2. Kupcewicz, E., Drężek–skrzeszewska, M., Roszuk, W., & Jóźwik, M. (2021). Relationship between frequency and intensity of menopausal symptoms and quality of life among Polish nurses. Risk Management and Healthcare Policy, 14, 97–107. https://doi.org/10.2147/RMHP.S287767
3. Leon, P., Chedraui, P., Hidalgo, L., & Ortiz, F. (2007). Perceptions and attitudes toward the menopause among middle aged women from Guayaquil, Ecuador. Maturitas, 57(3), 233–238. https://doi.org/10.1016/j.maturitas.2007.01.003
4. Nusrat, N., Nishat, Z., Gulfareen, H., Aftab, M., & Asia, N. (2008). Knowledge, attitude and experience of menopause. Journal of Ayub Medical College, Abbottabad : JAMC, 20(1), 56–59.

5. Perera, S. T., & Goonewardena, S. E. (2020). Prevalence, knowledge and attitudes of menopausal symptoms among women aged 40-60 years and their associated factors in a semi urban area, Matara district, Sri Lanka. International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 9(7), 2771. https://doi.org/10.18203/2320-1770.ijrcog20202706
6. Rathnayake, N., Alwis, G., Lenora, J., & Lekamwasam, S. (2019). Impact of Health-Promoting Lifestyle Education Intervention on Health-Promoting Behaviors and Health Status of Postmenopausal Women: A Quasi-Experimental Study from Sri Lanka. BioMed Research International, 2019, 1–17. https://doi.org/10.1155/2019/4060426
7. Rathnayake, N., Lenora, J., Alwis, G., & Lekamwasam, S. (2019). Prevalence and Severity of Menopausal Symptoms and the Quality of Life in Middle-aged Women: A Study from Sri Lanka. Nursing Research and Practice, 2019, 1–9. https://doi.org/10.1155/2019/2081507
8. Waidyasekera, H., Wijewardena, K., Lindmark, G., & Naessen, T. (2009). Menopausal symptoms and quality of life during the menopausal transition in Sri Lankan women. Menopause, 16(1), 164–170. https://doi.org/10.1097/gme.0b013e31817a8abd

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024
ISSN 1800- 4903

Original Paper

Knowledge and attitude on assisted reproductive technology among subfertile women: An initial experience from the low resource setting with evolving assisted reproductive services.

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Abstract:

Background: Subfertility is a global issue that affects approximately 48 million couples worldwide. Recent advances in fertility care have brought revolutionary advances in reproductive medicine. Assisted Reproductive Technology (ART) is one of the upcoming fertility treatment modalities in Sri Lanka. Poor knowledge and negative attitudes regarding ART among subfertile couples will negatively impact their outcome.

Objectives: This study assessed the knowledge and attitude towards assisted reproductive technology among subfertile women followed up at Teaching Hospital Jaffna.

Methods: A descriptive cross-sectional study was conducted among 126 subfertile women attending the Subfertility Clinic at Teaching Hospital Jaffna. All subfertile women were included regardless of whether ART was considered in their care. The study instrument was an interviewer-administered questionnaire. SPSS statistical software was used to analyze the data, and influencing factors were analyzed using the Chi-square test and ANOVA.

Results: This study included 126 participants; most (46%) were in the 30-40 age group educated up to O/L. Most of them (70.6%) suffered from primary subfertility with a duration of less than five years. Only 17.5% of women had moderate knowledge, and none had good knowledge of ART. More than half of them have a negative attitude about gamete donation and gestational surrogacy. Only 25.4% of participants could afford the cost of ART. Fifty-four per cent of participants expected ART facilities to be provided in the government sector. The participants' educational qualification (p=0.039) and subfertility duration (p=0.006) significantly influenced their knowledge regarding assisted reproductive technologies.

Conclusion: Subfertile women show a lack of awareness regarding ART and a negative viewpoint regarding third-party ART treatment. Financial constraints play a key role in seeking ART services.

Introduction

Subfertility is one of the reproductive health concerns of women and a common reason for seeking assistance.[1] According to the World Health Organization (WHO), around 16.5% of the adult population experience subfertility in low- and middle-income countries.[2] It places a significant psychological impact on the subfertile couples, especially on the woman, and it may lead to depression and suicidal tendencies. The definition of subfertility is "the failure to conceive after 12 months of unprotected sexual intercourse". The risk factors for subfertility include smoking, obesity, alcohol consumption, advanced maternal age, and sexually transmitted infections.[3] Therapeutic modalities of subfertility have increased over the period, along with the advancement of research and technology in this field. It ranges from simple medical treatment to advanced modalities such as assisted reproductive technology.[4]

Assisted reproductive technology (ART) refers to any fertility treatment/procedure that involves the handling of the egg and sperm. It consists in retrieving a woman's eggs from her ovaries, fertilizing them with sperm in a laboratory, and then transferring embryos into the prepared uterus.[4] ARTs, including In Vitro Fertilization (IVF) with fresh or frozen embryos, as well as Intra-Cytoplasmic Sperm Injection (ICSI), have become increasingly popular.1 In recent years, considerable success has been achieved in assisted reproductive technology. However, people's perceptions, expectations, and attitudes toward assisted reproduction would affect the decision-making to initiate this treatment.[5] The number of children born through assisted reproductive technology (ART) has increased markedly since 1978 when the first baby conceived through in-vitro fertilization (IVF) was born.[6] According to the International Working Group for Registers on Assisted Reproduction and the International Committee for Monitoring Assisted Reproductive Technology, the number of babies delivered each year by ART in countries reporting has increased approximately 40-fold since 1989, from 11,323.[7]

The first IVF child in Sri Lanka was born in November 1999, and it was presented as the first to open the way to broader access to IVF in Sri Lanka. Since then, the number of IVF children born in Sri Lanka has risen to several thousand, although accurate numbers are impossible to ascertain. The private sector remains the primary supplier of services in Sri Lanka.[8] Understanding subfertile couples regarding assisted reproductive technology is essential for optimizing subfertility treatment and carrying it out collaboratively. On the other hand, different aspects of this technology lead to many severe socio-economical and ethical concerns. Particularly for those who practice reproduction techniques, it is essential to have an awareness of the diverse public attitudes surrounding parental rights, legislation, and the accessibility of resources for assisted reproductive technologies (ART).[9]

Thus, the objective of this study was to determine the knowledge and attitude toward assisted reproductive technology among subfertile women attending Teaching Hospital, Jaffna.

Materials and Methods

It is a hospital-based descriptive cross-sectional study conducted at the professorial unit Sub-fertility Clinic in the Teaching Hospital Jaffna from July 2022 to February 2023. 126 subfertile women were recruited using a convenient sampling method and informed written consent was obtained from all the participants before the study. An interviewer-administered questionnaire was used as a study instrument to collect data from women attending the Sub-fertility clinic at the professorial unit in Teaching Hospital Jaffna. Content validation of the questionnaire was done by field experts in assisted reproductive technology. The questionnaire comprises socio-demographic data, fertility details, knowledge, and attitudes towards assisted reproductive technology among recruited women. Ethical clearance was obtained from the Ethical Review Committee of Teaching Hospital, Jaffna. SPSS statistical software was used to analyze and present the data using descriptive statistics of mean, standard deviation, and percentage. For assessing knowledge, each correct answer was given a "1" mark, and a false or unmarked answer was given a "0". The total marks for the knowledge part were 23. After analyzing the data, Bloom's original cut-off point was used to categorize the knowledge. Therefore, a score equal/ above 19 was considered good knowledge, 15-18 as Moderate knowledge and equal/ less than 14 as Poor knowledge. For assessing attitude, each positive approach was given as "1", and the negative approach was given as "0". The Chi-square test and ANOVA analyzed the influencing factors.

Results

This study included 126 participants, and the response rate was 100%.

Table 1-Distribution of socio-demographic factors of the participants (n=126)

Socio-demographic factors	Category	Frequency (n)	Percentage (%)
Age (In years)	20-30	47	37.3
	30-40	58	46.0
	40-50	20	15.9
	More than 50	1	0.8
Occupation	Employed	19	15.1
	Un-employee	107	84.9
Educational Qualification	Upto O/L	73	57.9
	Upto A/L	42	33.3
	Degree/ Diploma	11	8.7
Ethnicity	Tamil	125	99.2
	Muslim	1	0.8
Religion	Hindu	98	77.8
	Christian	27	21.4
	Islam	1	0.8
Average monthly income (LKR)	Upto 25000	40	31.7
	26000-50000	36	28.6
	More than 50000	1	0.8
	Not mentioned	49	38.9

According to the Socio-demographic data, many participants were in the 30-40 age category. The age range of the participants was between 20 and 57, with a mean age of 32.29 years (SD=7.28). Most participants were unemployed with an educational qualification up to O/L, and their average monthly income was up to 250,000.

Table 2-Distribution of subfertility-related factors of the participants (n=126)

Subfertility related factors	Category	(n)	(%)
Type of subfertility	Primary	89	70.6
	Secondary	37	29.4
Duration of subfertility (In Years)	Less than 5	94	74.6
	5 - 10	26	20.6
	10 – 15	4	3.2
	15 – 20	2	1.6

Getting Pre-conception advice from the primary healthcare team	No Yes	105 21	83.3 16.7
Source of information	Source of information Obstetrician and Gynecologist Relatives & Friends MOH/PHM General Physician Others	76 30 9 6 5	60.3 23.8 7.2 4.8 4.0

While considering their subfertility-related data, most of them (70.6%) suffered from primary subfertility with a duration of less than 5 years. More than half of the participants (60.3%) received information regarding their subfertility issues from a specialist Obstetrician and Gynecologist. Pre-conceptional advice was taken by only 16.7% of primary healthcare team participants, such as medical officers of health and public health midwives.

Distribution of overall knowledge of the participants on Assisted Reproductive Technology (ART)

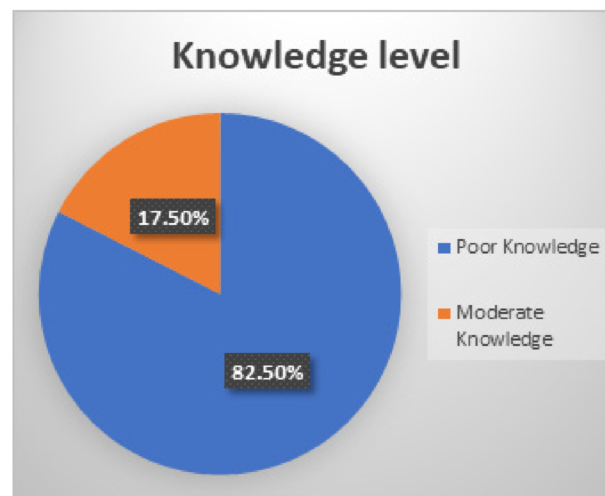

Figure 1 Level of knowledge of the participants (n=126)

According to their knowledge level, most women (82.5%) have poor knowledge of ART, whereas 17.5% have moderate knowledge of the treatment. None of them are knowledgeable in ART.

Table 3-Distribution of knowledge of the participants regarding ART (n=126)

		(n)	(%)
Affordability for ART	Can Can not	32 94	25.4 74.6
ART facilities in government sectors in future	Yes No	68 58	54.0 46.0
A preferable place for ART	Jaffna Colombo India	120 5 1	95.2 4.0 0.8
Cost for ART in future.	Will increase Will not increase	121 5	96.0 4.0

According to the distribution of knowledge, 95.2% of participants preferred to receive ART in Jaffna, but only 25.4% of them could afford the cost and 54% of participants desired future ART facilities in government sectors.

Distribution of attitudes of the participants on Assisted Reproductive Technology (ART)

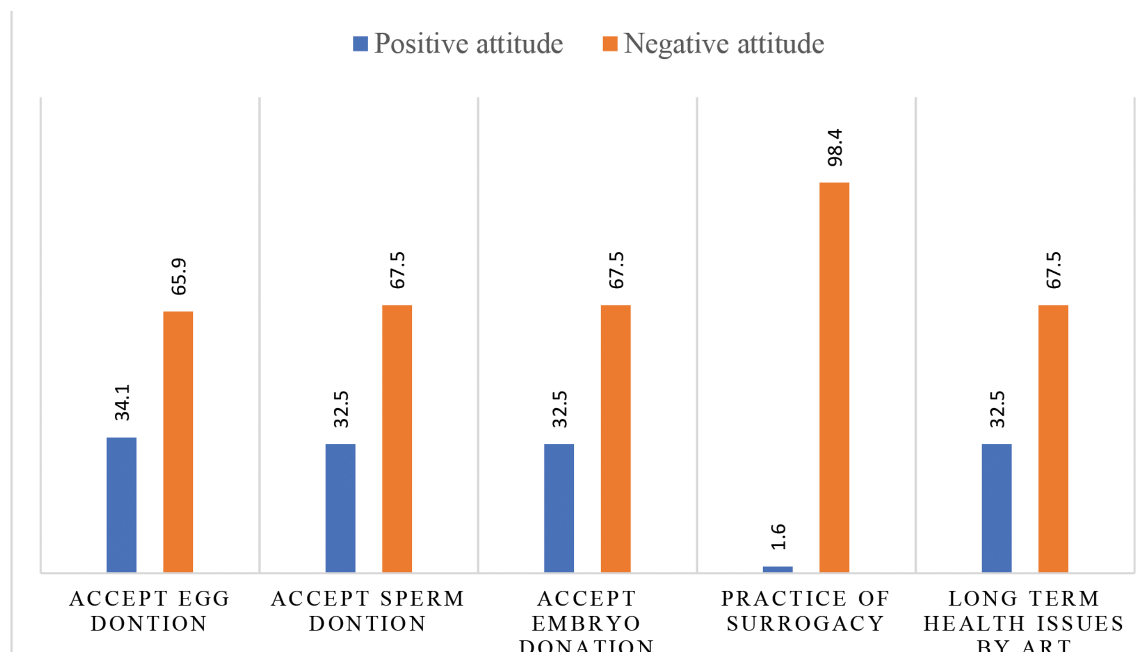

Figure 2: Attitude of the participants regarding Assisted Reproductive Technologies (n=126)

Regarding the attitude of the participants, more than half of them had a negative attitude about gamete donation (egg, sperm, and embryo), and almost all the participants, that is 98.4 %, had a negative attitude towards practising gestational surrogacy. Most of the women (67.5%) expressed that ART treatments will cause long-term health problems in future.

Table 4-Influence of Socio-demographic factors on knowledge regarding ART (p=126)

Socio-demographic factors	Level of knowledge of ART				Statistical test
	Moderate knowledge		Poor knowledge		
	(n)	(%)	(n)	(%)	
Age (In years)					$X^2 = 0.253$
Up to 35	15	18.8	65	81.3	Df = 1
More than 35	07	15.2	39	84.8	P value = 0.615
Occupation					$X^2 = 3.095$
Employee	06	31.6	13	68.4	Df = 1
Un-employee	15	15.0	91	85.0	P value = 0.079
Religion					$X^2 = 1.420$
Hindu	15	15.3	83	84.7	Df = 1
Others	07	25.0	21	25.0	P value = 0.233
Monthly income (LKR)					$X^2 = 0.077$
Up to 25000	15	16.9	74	83.1	Df = 1
More than 25000	07	18.9	30	81.1	P value = 0.781

According to the study results, those who were not Hindu, aged 35 years or younger, and employed with a monthly salary of 25,000 were found to have moderate knowledge about assisted reproductive technologies. However, there was no significant association.

Table 5: Influence of educational level and subfertility duration with the level of knowledge on ART among the participants (n=126)

Factors	Mean	SD	Test of homogeneity of variances		ANOVA	
			Levene statistic	Sig	F	Sig
Educational Qualification						
Up to O/L	12.08	2.278	3.344	0.039	2.321	0.102
Up to A/L	12.69	1.814				
Degree/ Diploma	13.45	3.236				
Subfertility duration						
Less than 5 years	12.38	2.176	4.338	0.006	0.318	0.813
5-10 years	12.54	2.284				
10-15 years	12.75	4.500				
15-20 years	11.00	0.000				

Table 6 shows that the knowledge level on ART differs significantly with the educational qualification (p=0.039) and duration of subfertility (p=0.006). However, the level of knowledge was the same within the educational groups and subfertility durations.

Discussion

This study aimed to determine the knowledge and attitude toward assisted reproductive technology in subfertile women. According to the subfertility data, the majority of the participants (70.6%) were having primary subfertility with a duration of up to 5 years and most of them received information about subfertility and assisted reproductive technologies through specialists in obstetrics and gynaecology. It is almost like the subfertility characteristic of a study done in Nigeria, showing that most of the participants reported a history of primary subfertility, and most of them had their duration of infertility up to 4 years.[1]

The present study shows that only 17.5% of the participants had a moderate level of knowledge regarding assisted reproductive technologies. Contrary to studies done in Hungary and Iran, it revealed that approximately half of the respondents (49.3%) rated themselves reasonably knowledgeable about ART, and 41.7% of the participants had good knowledge regarding ART respectively.[8,10] Most women (82.5%) had poor knowledge, similar to an Indian study, which reports 75.6% of women with poor knowledge towards ART.[11] Our findings showed that nearly 65% of the participants were unaware of ART complications such as ectopic pregnancy, multiple pregnancies and ovarian hyperstimulation syndrome. These findings are consistent with the Hungarian study, which found that nearly 55% of the participants were unaware of the ART-related health risks. Furthermore, the same study reported that more than half of the participants were aware of the success rate (51.5%), the cost of ART (74.9%) and the age limit (53.5%).[8] It contradicted our study findings by demonstrating that less than half of the participants only knew about the success rate (37.3%), cost of ART (39.7%) and age limit (21.4%).

According to the participants' attitudes, it has been shown that more than half of the participants had a negative approach to third-party involvement in ART. Also, a negative attitude was found towards sperm donation (67.5%) and egg donation (65.9%). This contrasts with the Iran study, reporting that most of the participants expressed a negative attitude regarding sperm donation (98.7%) and egg donation (96%). However, the same study revealed that 96.5% of the participants disagreed with the practice of surrogacy[10], which is similar to the present study, as almost all the participants, 98.4%, opposed the practice of surrogacy.

Overall, our study showed negative attitudes towards ART among most participants. In contrast, a study by Szalma, I., & Bitó, T revealed that most participants had positive attitudes toward ART treatment.[8]

Our study findings showed that educational level (p = 0.039) and subfertility duration (p = 0.006) were significantly associated with the participant's knowledge of ART. However, no significant difference was found between educational groups or subfertility durations. Parallelly, the Indian study revealed that knowledge was significantly associated with education.[11] Conversely, the Hungarian study showed higher education being associated with more excellent knowledge and fertility awareness.[8] Regarding the resources available on ART, the current study shows most of the participants (60.3%) received information from their specialist obstetrician and gynaecologist and 23.8% of them from their relatives and friends. In contrast, the Iran study revealed that 73% of participants mentioned that ART centres were the source of their information, followed by radio and television (17.5%), friends (6%) and publications (3.5%). Our study shows that around 63.5% of the participants had financial restraints to proceed with ART, comparable with the Iranian study, which revealed that 94.5% of participants mentioned the cost of ART as burdensome10.

The current study has many strengths along with a few limitations. A 100% response rate from the participants gives an accurate data analysis and shows the engagement of the participants in a particular topic and the need for ART in their community. Also, this study was conducted at the tertiary hospital, which has a representative population of the Northern Province of Sri Lanka. However, the findings cannot be generalized to the country as it has different ethnic groups. Thus, a large multi-centre study is recommended to get more precise results. Despite the popularity of ART, more research material on ART in Sri Lanka is needed to validate our findings.

Conclusion

This study shows there was a lack of knowledge on ART treatment and a negative viewpoint regarding third-party ART among subfertile women. Expenses and affordability of ART are the main concerns when seeking these services. This study recommends improving the knowledge of ART from the community level with standard education tools. Government sectors will have to collaborate with the private sector (Public-Private Partnership) to provide ART facilities to address financial constraints, preventing subfertile couples from avoiding or delaying ART.

Author contribution

Dr. S. Raguraman created the conception and framework for this study. Prof. K. Muhunthan suggested guidance in forming a questionnaire and drafting a manuscript. R.Niroje did data collection. Dr. S. Raguraman and R. Niroje did data analysis and manuscript writing. All authors read and approved the final manuscript.

Reference

1. Akande SO, Dipeolu IO, Ajuwon AJ. Attitude and willingness of infertile persons towards the uptake of assisted reproductive technologies in Ibadan, Nigeria. Annals of Ibadan postgraduate medicine. 2019 Oct 17;17(1):51-8.
2. "1 in 6 People Globally Affected by Infertility: Who." World Health Organization, World Health Organization, 4 Apr. 2023, www.who.int/news/item/04-04-2023-1-in-6-people-globally-affected-by infertility
3. Abolfotouh MA, Alabdrabalnabi AA, Albacker RB, Al-Jughaiman UA, Hassan SN. Knowledge, attitude, and practices of infertility among Saudi couples. International journal of general medicine. 2013 Jul 10:563-73.
4. Nguefack CT, Ourtching C, Gregory HE, Priso EB. Knowledge, attitudes and practices of infertile women on child adoption in Douala (Cameroon). Open Journal of Obstetrics and Gynecology. 2014 Nov 27;4(16):1065.
5. Afshani SA, Abdoli AM, Hashempour M, Baghbeheshti M, Zolfaghari M. The attitudes of infertile couples towards assisted reproductive techniques in Yazd, Iran: A cross-sectional study in 2014. International Journal of Reproductive BioMedicine. 2016 Dec;14(12):761.
6. Dissanayake VW, Simpson R, Jayasekara RW. Attitudes towards the new genetic and assisted reproductive technologies in Sri Lanka: a preliminary report. New Genetics and Society. 2002 Mar 1;21(1):65-74.
7. Fauser BC, Boivin J, Barri PN, Tarlatzis BC, Schmidt L, Levy-Toledano R. Beliefs, attitudes and funding of assisted reproductive technology: Public perception of over 6,000 respondents from 6 European countries. PLoS One. 2019 Jan 25;14(1):e0211150.

8. Szalma I, Bitó T. Knowledge and attitudes about assisted reproductive technology: Findings from a Hungarian online survey. Reproductive Biomedicine & Society Online. 2021 Aug 1;13:75-84.
9. Simpson B. IVF in Sri Lanka: A concise history of regulatory impasse. Reproductive Biomedicine & Society Online. 2016 Jun 1;2:8-15.
10. Sohrabvand, F. and Jafarabadi, M. Knowledge and attitudes of infertile couples about assisted reproductive technology. Iranian Journal of Reproductive Medicine. 2005: 2;3: 90–94.
11. Rajan S, Vahitha S, Chitra T. Knowledge and attitude regarding assisted reproductive technology among infertile women. International Journal of Nursing Research. 2017:118-22.

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024
ISSN 1800- 4903

Influence of food habits and supplementations in causing anaemia; a study among the pregnant women attending Antenatal Clinics at Teaching Hospital, Batticaloa.

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Abstract:

Introduction: Anaemia in pregnancy is a well-recognized condition. The pre-pregnancy and antenatal care are designed to identify and correct this condition. This study aimed to analyse the meal pattern, iron supplementation and deworming treatment by the pregnant mother in Batticaloa Sri Lanka, concerning the prevalence of anaemia.

Materials & Methods: A descriptive study was conducted among pregnant mothers in Batticaloa, Sri Lanka in 2022. A self-administered questionnaire was used. A report on the haemoglobin level was obtained from the pregnancy record. A haemoglobin level, of less than 11 g/dL was taken as the reference point. Descriptive statistics was used to analyse the data. Statistical software SPSS V.19 was used for this.

Results: 207 pregnant women were enrolled; 82(39.61%) had anaemia. Fifty per cent of women with a monthly income up to Rs. 10,000.00 had anaemia. Mothers who had two meals a day had a higher incidence (68.75%). Those who consumed fruit and vegetables daily had the lowest level (27.27%). Avoiding iron-rich food showed a higher incidence (53.57%). Fifty-four per cent of the mothers did not take iron supplementation; anaemia was noted in 51.79% of them. Eighty-nine per cent of the women did not take deworming treatment and anaemia was noted in 40.22% of them. On those who consumed tea immediately after meals (n-16), 9 mothers developed anaemia.

Conclusion: A higher prevalence of anaemia among pregnant women in the Batticaloa region compared to other regions of Sri Lanka could be attributed to poor compliance with iron supplementation. Meal patterns had an association with family income. Avoiding consuming tea immediately after a meal appeared a good practice. Pregnant mothers must be encouraged to have deworming treatment, to minimize the incidence of anaemia.

Key words: Anaemia, Pregnant mothers, meal pattern, iron supplementation, deworming

Introduction:

Anaemia in pregnancy is a well-recognized condition, associated with significant morbidity and mortality. The pre-pregnancy and ante-natal care have been designed to identify and correct this condition before the pregnant woman goes into labour.

Pregnancy is a physiological condition with an increase in the metabolism of the body and the incorporation of an additional foeto-placental circulation. Thus the demand for oxygen availability at the cellular level increases. Pregnancy causes a 15% increase in the metabolic rate and a 20% increase in the consumption of oxygen. There is a 40–50% increase in minute ventilation, mostly due to an increase in tidal volume, rather than in the respiratory rate. This maternal hyperventilation causes arterial pO2 to increase (1). Approximately 98% of the total oxygen transported in the blood is bound to haemoglobin (2).

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Anaemia is generally defined according to haemoglobin levels less than 11 g/dL at any time during pregnancy. (3). Once anaemia is recognized, the possibility of iron deficiency should be considered because a large proportion of anaemia worldwide is due to iron deficiency (4). Pregnancy and lactation result in increased iron demands. Nutritional status is the key to preventing iron deficiency. The total iron intake during the whole course of pregnancy should not be less than 1000 mg (5).

The World Health Organization estimated the prevalence of anaemia among women world-wide is 29.0% and among the pregnant women the value exceeds to 36.5% (6). Prevalence of anaemia among pregnant women in Sri Lanka fluctuates around 30% in recent years (7). These statistics explain the significance of the problem and the dire need to have continuing studies to find out remedy. Since the nutritional factors play a major role, it is essential to study the influencing factors causing anaemia. Further, the compliance of pregnant women consuming iron supplements prescribed in the antenatal clinics needs to be looked into. Hookworm infestation is a recognized cause for anaemia and deworming therapy is a routine for pregnant women. The general objective of this study is to analyse the meal patterns, the inclusion of iron-rich food including fruits and vegetables, iron supplementation and deworming treatment by pregnant women, in relation to the prevalence of anaemia.

Materials and Methods:

A descriptive study was conducted among the pregnant women attending the antenatal clinics at Teaching Hospital, Batticaloa, Sri Lanka in the year 2022. Ethical clearance was obtained from the Ethical Review Committee of Faculty of Health-Care Sciences, Eastern University, Sri Lanka. A self-administered questionnaire was used to obtain the data from randomly selected 207 participants. A pilot study among fifteen pregnant women were conducted and the questionnaire validated. A laboratory report on the haemoglobin level was obtained from the pregnancy record of the participants. Haemoglobin (Hb) level has been categorized as follows:

- Mild 10-10.9 g/dl
- Moderate 7-9.9 g/dl
- Severe <7 g/dl

Descriptive statistics was used to analyze the data. The statistical software SPSS V.19 was used to analyse the data.

Results:

A total of 207 pregnant women were enrolled in this study. Among them 82(39.61%) had anaemia. The impact of the income level of the household on anaemia is shown in Table 1. Half of the mothers with a monthly income of up to Rs. 10,000 had anaemia. Little over one third of the mothers with a monthly income of up to Rs. 60,000 were anaemic.

Table 1: Income level and prevalence of anaemia.

Monthly income (Rs)	Number of pregnant women	Number of women with Anaemia	percentage
Up to 10000	52	26	50.00
Up to 30000	100	36	36.00
Up to 60000	53	20	37.74
Over 60000	02	--	--
Total	207	82	39.61

Meal habit: Table 2 shows the number of times pregnant women had regular meals. The majority (70%) had the standard three times a day and the prevalence of anaemia was the lowest among them. There is a significant association between the number of meals and anaemia (Chi-square 18.937, df-2, $p<0.05$). Another notable observation is that about half of the women who had four or more meals a day had anaemia.

Table 2: Frequency of regular meals by pregnant women

Frequency of meals/day	No. of pregnant women	No. of women with Anaemia	Percentage
2 Times	32 (12%)	22	68.75
3 Times	125 (70%)	36	28.80
4 Times or more	50 (18%)	24	48.00

Pregnant women are prescribed ferrous sulfate tablets as an iron supplement when attending the antenatal clinic. Table 3 shows details on its usage. There is a significant association between iron supplement consumption and anaemia (Chi-square 14.027, df-1, p<0.05). About 46% of the women consumed the tablets regularly and one-fourth of them had anaemia. Whereas, over half of those who had not consumed the iron supplement regularly were anaemic.

Table 3: Usage of Iron supplement by pregnant women

Iron supplements consumed regularly	No. of pregnant women	No. of women with Anaemia	Percentage
Yes	95 (46%)	24	25.26%
No	112	58	51.79%

Table 4 shows the breakdown of consumption of iron-rich food by pregnant women. There is a significant association between iron-containing diet consumption and anaemia (Chi-square 5.478, df-1, p<0.05). Sixty-three per cent of the women consumed such a diet and among them a little over one-third had anaemia. Among those not consuming such a diet, over half (53.57%) were anaemic.

Table 4: Data on consuming the iron rich diet

Iron Containing Diet consumed	No. of pregnant women	No. of women with Anaemia	Percentage
Yes	151 (63%)	52	34.44
No	56 (37%)	30	53.57

Fruits and vegetables contain energy, vitamins and minerals, useful for the production of red blood cells. (Table 5). Those who consumed them daily had the lowest prevalence of anaemia whereas 52% of those who rarely consumed them had anaemia.

Table 5: consumption of fruits and vegetables and anaemia status

Fruit & Veg Group	No. of pregnant women	No. of women with Anaemia	Percentage
Daily	33 (16%)	09	27.27
2- 3 days/week	118	46	39.0
Once a week	31	14	45.16
Rarely	25 (12%)	13	52.00

The habit of having tea after a meal has an impact on iron absorption. Table 6 shows the breakdown. Among those women (8% of the total) had tea, over half of them had anaemia.

Table 6: Data on tea immediately after meal

Had Tea After Meal	No. of pregnant women	No. of women with Anaemia	Percentage
Yes	16 (8%)	09	56.25
No	191	73	38.22

Worm infestation, especially hookworm causes anaemia, and deworming treatment has been a recognized care in the antenatal period (Table 7). Eighty-nine per cent of the study cohort did not consume the treatment and about 40% of them had anaemia.

Table 7: Deworming treatment status

Had Deworming Treatment	No. of pregnant women	No. of women with Anaemia	Percentage
Yes	23	8	34.78
No	184 (89%)	74	40.22

Discussion

Anaemia is a universal condition in Medical practice. Every healthcare personnel must have a comprehensive understanding and application of this condition. Monthly menstruation adds the burden among the female population. This can be an additional burden when they become pregnant. Haemoglobin (Hb) is directly connected with the oxygen-carrying capacity of the blood which is essential for the aerobic metabolism occurring at the cellular level (2). Thus, if the Hb level is low, the oxygen-carrying capacity is reduced and a persistent reduction in oxygen transportation capacity is most often the result of anaemia (8).

Our study showed the prevalence of anaemia among the population studied was 39.61%. The study done in Anuradhapura district showed 19.3% (9), indicating higher prevalence in the Batticaloa area. The incidence was significantly high, giving an alarm on the need for strict scrutiny in caring for women with the potential for pregnancy. In a study done in Galle, the incidence of anaemia among pregnant women in the second trimester (12 to 20 weeks) was 16.6% and iron deficiency was 36.9% (10). Another study conducted at Peradeniya, Kandy reported that prevalence in the first, second and third trimesters of pregnancy were 20.7%, 27.38% and 28.76% respectively with the predominantly higher incidence among Tamil people (2/11). These indicate the magnitude of the problem of iron deficiency among Sri Lankan women potential to become pregnant.

The family income appears to have a major role as shown in our study. The economic crisis Sri Lanka over the last few years, and the prices of the commodities make many families unable to afford meals rich in essential vitamins and minerals. This is a challenge for the health sector as we encounter the status of malnutrition in the community. However, majority of the pregnant women (about 70%) had the meal in the standard three times a day with the lowest prevalence of anaemia (Table 2) which was also shown statistically significant in this study, indicating that pregnant mothers must be motivated to this practice. The inclusion of vegetables, fruits (Table 4) and food items rich in iron (Table 5) would be a step to reduce anaemia. A study conducted in Peradeniya reported the beneficial effect of pregnant mothers regularly consuming green leaves and eggs in their meals in minimizing anaemia (11). Income level is certainly a deciding factor, as shown in our study, that the haemoglobin level was in the normal range in those pregnant women with high family income. It has been reported that more than two-thirds of the women with anaemia had been diagnosed during a previous pregnancy. Hence paying attention to the etiology of anemia identified in pregnant women and following them up during the postnatal period would be beneficial to providing a continuum of care. Strategies to mend this gap will reduce the burden of anaemia in pregnancy through assessment and optimization of the macro and micronutrient status of women before pregnancy (12) .

Sri Lanka is a country where tea drinking is a strong tradition, such that over 85% of people regularly drink black tea (13). Tea and coffee contain caffeine, which can interfere with iron absorption and thus advised to be consumed at separate times from meal time. Our study showed that 92% adhered to this advice and among them, the prevalence of anaemia was less (38.22%) when compared to those consuming tea after meals (> 50%). In a study conducted at Kurunegala Hospital the analysis of compliance regarding dietary advice on tea, coffee and milk consumption, and main meal consumption, it was found that only 26.6% of the participants adhered to this advice (7).

Particular emphasis should be made on the iron supplementation routinely given in the antenatal clinics. Ferrous sulphate 200 mg tablets are prescribed

once a day from the second trimester. Compliance with taking this tablet regularly is the concern as shown in our study (Table 3) with a statistically significant association between consuming iron supplementation and anaemia. About 54% did not take it regularly and there can be instances women might not have taken it at all. An in-depth study on poor compliance is needed today.

Prescription of mebendazole as a deworming treatment has been routine in antenatal care in Sri Lanka. However, our study showed that 89% of the women in our study did not take such treatment and the high prevalence of anaemia encompasses the need to re-emphasize the deworming therapy routinely on all pregnant women. In a meta-analysis on the use of anti-helminthic (14), it was concluded that administering anti-helminthic in the second trimester of pregnancy along with iron-folate has shown a beneficial effect on maternal anaemia. In rural India, a study showed a significant decrease in the prevalence of anaemia with the use of deworming along with iron-folate supplements (15).

Conclusion

The high prevalence of anaemia among pregnant women in the Batticaloa region compared to the other regions of Sri Lanka has a significant impact on maternal well-being. It in turn has an impact on foetal growth and well-being, as well as future developments. The main reason for such a high rate is attributable to poor compliance in consuming iron supplementation. Other factors such as pregnant mothers not having three times meals per day, not consuming an iron-rich diet, and fruits and vegetables are to some extent connected with the family income. Avoiding consuming tea immediately after a meal appeared to be a good practice. Pregnant mothers must be encouraged to have deworming treatment, to minimize the incidence of anaemia.

Reference:

1. Soma-Pillay P, Nelson-Piercy C, Tolppanen H, Mebazaa A. Physiological changes in pregnancy. Cardiovasc J Afr. 2016 Mar-Apr;27(2):89-94. doi: 10.5830/CVJA-2016-021. PMID: 27213856; PMCID: PMC4928162.
2. Rhodes CE, Denault D, Varacallo M. Physiology, Oxygen Transport. [Updated 2022 Nov 14]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK538336/
3. Gautam CS, Saha L, Sekhri K, Saha PK. Iron deficiency in pregnancy and the rationality of iron supplements prescribed during pregnancy. Medscape J Med. 2008;10(12):283. Epub 2008 Dec 16. PMID: 19242589; PMCID: PMC2644004
4. Georieff M K. Iron deficiency in pregnancy. American J Obst & Gynecol. Oct. 2020. 223(4); 516 -524. https://doi.org/10.1016/j.ajog.2020.03.006
5. Bothwell TH. Iron requirements in pregnancy and strategies to meet them. Am J Clin Nutr. 2000;72:257–264.
6. WHO Global Anaemia estimates, 2021 Edition; https://www.who.int/data/gho/data/themes/topics/anaemia_in_women_and_children accessed on 6 December 2023
7. Pathirathna ML, Wimalasiri KMS, Sekijima K, Sadakata M. Maternal Compliance to Recommended Iron and Folic Acid Supplementation in Pregnancy, Sri Lanka: A Hospital-Based Cross-Sectional Study. Nutrients. 2020 Oct 25;12(11):3266. doi: 10.3390/nu12113266. PMID: 33113819; PMCID: PMC7694027
8. Kaufman DP, Kandle PF, Murray IV, Dhamoon AS. Physiology, Oxyhemoglobin Dissociation Curve. 2023 Jul 31. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan–. PMID: 29762993
9. Chathurani U, Dharshika I, Galgamuwa D, Wickramasinghe ND, Agampodi TC, Agampodi SB. Anaemia in pregnancy in the district of Anuradhapura, Sri Lanka--need for updating prevalence data and screening strategies. Ceylon Med J. 2012 Sep;57(3):101-6. doi: 10.4038/cmj.v57i3.4148. PMID: 23086024
10. Senadheera, D., Goonewardene, M. and Mampitiya, I. (2017) 'Authors response: Anaemia and iron deficiency in pregnant women attending an antenatal clinic in a Teaching Hospital in Southern Sri Lanka', Ceylon Medical Journal, 62(4), p. 256. doi:10.4038/cmj.v62i4.8589.
11. Kandauda IC, Tennakoon S, Rathnayake PM, Maduwage K, Gunathilake T. Prevalence and aetiology of anaemia in pregnant women attending a tertiary care unit in Sri Lanka, and its effect on the mother and newborn. Sri Lanka Journal of Medicine. 2020;29: 37.

12. Amarasinghe GS, Agampodi TC, Mendis V, Agampodi SB. Factors associated with early pregnancy anemia in rural Sri Lanka: Does being 'under care' iron out socioeconomic disparities? PLoS One. 2022 Oct 6;17(10):e0274642. doi: 10.1371/journal.pone.0274642. PMID: 36201463; PMCID: PMC9536542
13. Abeygoonaratne M.V.C., Kularatne M.G. Factors influencing tea consumption behavior in Sri Lanka (with special reference to Ratmalana divisional secretariat in Colombo District); Proceedings of the First National Symposium of Social Sciences Undergraduates (NSSU); Kelaniya, Sri Lanka. 1st December 2015; Colombo, Sri Lanka: University of Kelaniya; 2015. p. 73.
14. Salam RA, Haider BA, Humayun Q, Bhutta ZA. Effect of administration of antihelminthics for soil-transmitted helminths during pregnancy. Cochrane Database of Systematic Reviews 2015, Issue 6. Art. No.: CD005547. DOI: 10.1002/14651858.CD005547.pub3. Accessed 03 January 2024).
15. Abel, R., Rajaratnam, J., Kalaimani, A. et al. Can iron status be improved in each of the three trimesters? A community-based study. Eur J Clin Nutr 54, 490–493 (2000). https://doi.org/10.1038/sj.ejcn.1601044,

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024
ISSN 1800- 4903

Featured Article

Family Medicine and Primary Care: Challenges in Healthcare System

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What is Family Medicine?

Family medicine is a medical speciality focused on providing comprehensive healthcare for individuals and families across all ages, genders, and various medical conditions. The scope of family medicine encompasses a wide range of medical services like preventive care, diagnosis and treatment of acute and chronic illnesses, management of chronic conditions, health promotion, and patient education. Additionally, Family Medicine emphasizes a biopsychosocial approach to patient care, recognizing the interconnectedness of biological, psychological, and social factors in influencing health. Overall, Family Medicine plays a vital role in the healthcare system by providing comprehensive, patient-centred care that addresses the diverse healthcare needs of individuals and families throughout their lives.

Who are Family Physicians?

Family Physicians are trained professionals in the academic discipline of Family Medicine who can deliver and cover the principles of family medicine namely first-contact, continuous, coordinated, comprehensive and patient-centred care. They often serve as primary care providers, meaning they are usually the first point of contact for patients seeking medical care and they coordinate care across different specialties when necessary. Primary care practitioners are responsible for the ongoing health of their patients through prevention, early diagnosis, and management of common health conditions. An important aspect of their work is making referrals to specialists as and when needed.

Family Physicians provide accessible and timely healthcare services to individuals and families in their communities. They take a holistic approach to patient care, considering not only their physical health but also their mental, emotional, and social well-being. While providing continuity of care, they develop a deep understanding of their patients' medical history, preferences, values, and social context, leading to a more personalized and effective healthcare delivery. Furthermore, Family Physicians serve as coordinators of care, facilitating communication and collaboration among various healthcare providers and specialists involved in an individual's medical care and oversee the transitions of care through different healthcare settings.

Family physicians advocate for individual patients' health and well-being by promoting public health initiatives, campaigning for healthcare policy changes, and addressing healthcare disparities within their community. They care for patients throughout their entire lives, from infancy to old age addressing a broad spectrum of medical issues, from common colds and minor injuries to complex chronic diseases such as diabetes, hypertension, and heart disease.

They educate and empower people to take an active role in managing their health and provide information about medical conditions, treatment options, preventive measures, and guidance on healthy lifestyle behaviours and self-care practices. Thus, family medicine is essential for promoting health, preventing diseases, managing medical conditions, and providing patient-centred, accessible, and high-quality healthcare services to individuals and families throughout their lives.

Family physicians as Primary Care Physicians (PCPs) play a multifaceted role in improving access to healthcare services for underserved populations and fostering strong relationships with patients and communities. PCPs serve as coordinators of care, helping patients navigate the healthcare system and ensuring continuity and coherence in their medical treatment. They make timely references to specialists as needed.

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What is Primary Healthcare (PHC)?

Primary Healthcare is defined as essential health care based on practical, scientifically sound and socially acceptable methods and technology, made universally accessible to individuals and families in the community, through their full participation and at a cost that the community and country can afford to maintain in the spirit of self-reliance and self-determination (WHO, 1975). Scaling up primary health care interventions across low and middle-income countries could save 60 million lives and increase average life expectancy by 3.7 years by 2030 (WHO, 2023).

Quality primary healthcare is imperative for universal health coverage through expanding health institutions and increasing skilled health professionals to deliver services near to people. Primary healthcare addresses the broader determinants of health and focuses on the comprehensive and interrelated aspects of physical, mental and social health and wellbeing. PHC ensures people receive quality comprehensive care – ranging from promotion and prevention to treatment, rehabilitation and palliative care – as close as feasible to people's everyday environment. It includes Primary Care as the whole-person care for health needs throughout the lifespan, not just for a set of specific diseases.

What is primary care?

Primary care is an important part of the primary healthcare system that helps to reduce complications and hospital admissions through prevention and early intervention. However, there are a number of challenges in primary care that must be addressed to maintain the quality and benefits of primary care provision. Primary care is considered the foundation of healthcare systems worldwide due to its central role in promoting health, preventing diseases, managing common medical conditions, and coordinating care for individuals and families. It emphasizes building long-term relationships between patients and their healthcare providers. Accessible quality primary care is associated with better health outcomes, lower healthcare costs, and increased patient satisfaction.

Challenges in Primary Care in the healthcare system

The quality of primary care varies considerably among different practitioners and regions. This can be an issue in some areas where the level of primary care is lacking, and patients may not receive the full benefits. Each family physician has a particular way of working with patients and promoting their health, which could be suitable with some patients than others. As such, it is important that patients are in a position to make a selection and find the family physician that best caters to their needs. However, in some regions there is a noticeable lack of choice and patients may not receive all the benefits of primary care, as they do not have access to the physician best suited to their needs.

The National Health Policy of Sri Lanka states that healthcare will be made more accessible to the community on an equitable basis with provision for meeting specific health needs, improving the quality to a level acceptable to the community and service providers. The latter are also in a unique position to understand and study the natural course of disease, the family setting, and to treat and follow up chronic or recurrent health conditions. The challenges facing primary care are related to these and it is important to identify and devise strategies to overcome them.

There are several barriers for primary care. A shortage of primary care physicians is a significant challenge, and the demand for new practitioners is currently growing at a faster rate than the supply. The presence of trust between a primary care practitioner and the patient is important to maintain a strong relationship and get the most benefits from primary care. As the primary care practitioner is the point of entry for the public into the health system, patients should feel comfortable to discuss any signs or symptoms that they may be experiencing

In order to retain the health professionals in primary care settings it is ideal to offer more competitive salaries, flexible work schedules, and opportunities for career advancement. These improvements can make the profession more appealing and encourage professionals to stay in the field. Increasing the use of technology in healthcare can help reduce workloads for healthcare professionals. Automation of routine tasks, electronic health records, and telemedicine can streamline processes, allowing professionals to focus on patient care rather than administrative burdens.

Personalized care often requires a more intricate approach to diagnosis and treatment. The healthcare industry is facing an increased demand for personalized care. This shift is primarily driven by

the rise of consumerism within healthcare, which has fundamentally changed the behaviour and expectations of patients. Healthcare providers must invest more time and resources to understand each patient's unique health profile. This can lead to resource allocation challenges. Though, with easy access to vast amounts of medical information online, patients are now more informed and empowered than ever before. They no longer passively accept treatment options but actively seek healthcare solutions that cater to their unique needs and preferences

To address the challenge of increased demand for personalized care in the healthcare industry, strategies and solutions need to be adopted. For example, remote patient monitoring tools and mobile apps to empower patients to actively engage in their health management. Advanced data analytics and artificial intelligence are used to process vast amounts of patient data. These enable healthcare providers to identify personalized treatment plans, predict health trends, and improve patient outcomes. By 2024, it is estimated that approximately 75% of healthcare facilities in the United States will be using remote patient monitoring technology.

Furthermore, integrating mental health services into primary care settings can help reduce barriers to access. This approach ensures that individuals receive comprehensive care that addresses both their physical and mental health needs. Mental health problems can diminish the quality of life for those affected and their families. Untreated mental illnesses can lead to disability, unemployment, and social isolation. Stigmatization of mental health issues remains a significant barrier to seeking help. Many individuals still hesitate to discuss their mental health concerns openly due to fear of discrimination or societal judgment

The escalating costs of healthcare services remain one of the most significant challenges in the healthcare industry and is a global concern that needs to be addressed. Furthermore, it is essential to explore the advancements in healthcare technology and their implications and the evolving landscape of policies and regulations. Skyrocketing medical bills force individuals into difficult financial predicaments and unaffordable healthcare service prices often lead individuals to postpone or forego necessary treatments. In addition, an aging population has led to a growing demand for healthcare services and demographic shift places immense pressure on an already limited healthcare workforce.

Many of the problems are a direct result of the market approach to health care. Innovation is needed in how primary care functions are financed, protected, organised, and taught in order to identify options for a stable and robust health system built on primary care. "The investment capital that drives service and program development in medicine is generally not being used to develop primary or generalist medical services. Instead, as in every market economy, capital is being invested to expand the more lucrative services' (Larson EB, et al; 2005). Therefore, in the meantime, primary care providers are beginning to bring the more lucrative technologies and ancillary services back into their offices as a means of surviving.

Health care is an important economic driving force in any developing country. If primary care cannot make the considerable investment required to transform its business and clinical model, and cannot attract new doctors, the result will be worsened health outcomes and disparities in a country like Sri Lanka. Therefore, the Sri Lankan Government need to move to support a broad range of primary care services. While innovations in organisation and teaching are required for enjoyment better population health outcomes, lower health disparities, more equitable access to care, and lower costs in future years

References

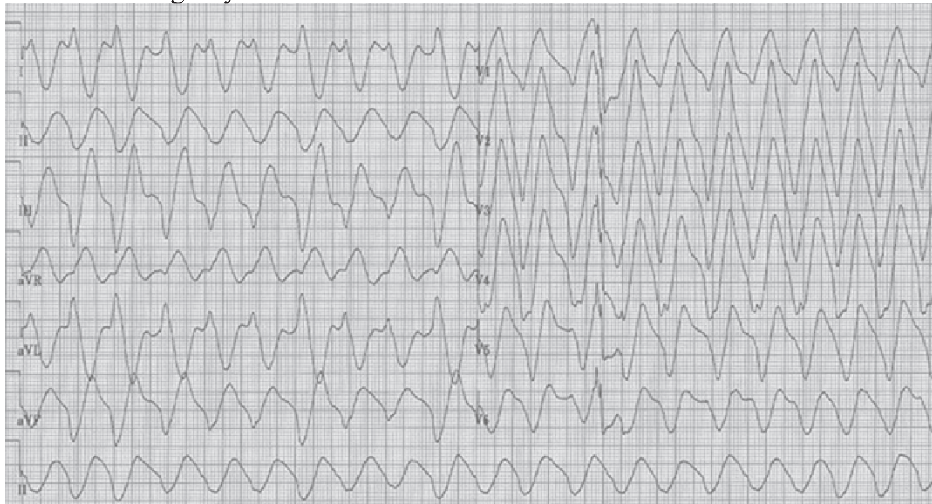
1. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4070226/
2. https://www.coursera.org/learn/healthcare-delivery-providers/lecture/OaiCD/4-1-6-primary-care-challenges-innovations
3. http://www.aafp.org/about/policies/all/primary-care.html
4. http://www.who.int/topics/primary_health_care/en/
5. http://www.sochealth.co.uk/national-health-service/royal-commission-on-the-
6. https://absoluteucare.com/navigating-the-terrain-overcoming-common-challenges-faced-by-primary-care-providers-in-the-usa/
7. https://www.who.int/news-room/fact-sheets/detail/primary-health-care#:~:text=PHC%20addresses%20the%20broader%20determinants,a%20set%20of%20specific%20disea
8. https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-023-09917-3
9. Larson EB, Roberts KB, Grumbach K. Primary care, generalism, public good: déjà vu? again! Ann Intern Med 2005;142: 671-4. [PubMed] [Google Scholar]

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024
ISSN 1800- 4903

Quiz Page

QUIZ 1. A Lethal Rhythm

This is the ECG of a 55-year-old patient diagnosed with, hypertension, diabetes mellitus and chronic kidney disease. He presents to the emergency treatment unit with dizziness.



What immediate intervention is indicated for this patient?

- A. DC cardioversion
- B. Intravenous Calcium gluconate
- C. Primary PCI
- D. Subcutaneous Enoxaparin
- E. Thrombolysis

QUIZ 2. A Clinical Problem

A one-year-old boy who was treated for a culture-positive UTI a week ago comes for a routine follow-up with these reports. He is currently well.

Urine Full Report

Description
Colour - Colourless
Appearance - Clear

Chemical Analysis
Specific Gravity 1.012
Reaction - pH 6.5
Albumin - nil
Sugar - nil
Ketone bodies - nil
Bile - negative

Microscopy
Pus cells - nil
Red cells - nil
Epithelial cells - nil
Crystals - nil
Casts - nil
Organisms - +

OPEN ACCESS

CULTURE SOURCE : URINE

URINE CULTURE & A.B.S.T

CULTURE RESULT :

Organism 1 = A COLIFORM 10^4 - 10^5 CFU / ML ISOLATED

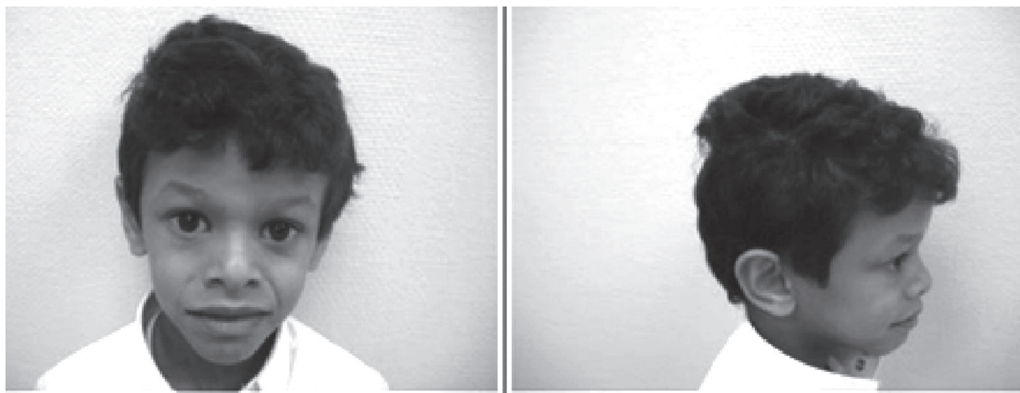
Antibiotics	First Line Antibiotic	Second Line Antibiotic
AMIKACIN		SENSITIVE
AMOXYCILLIN	RESISTANT	
CEFOTAXIME		RESISTANT
CEFTAZIDIME		RESISTANT
CEFUROXIME	RESISTANT	
CEPHALEXIN	RESISTANT	
CIPROFLOXACIN		SENSITIVE
CO-AMOXYCLAV	RESISTANT	
CO-TRIMOXAZOLE		SENSITIVE
GENTAMICIN	SENSITIVE	
IMIPENEM		SENSITIVE
MECILLINAM	RESISTANT	
MEROPENEM		SENSITIVE
NETILMICIN		SENSITIVE
NITROFURANTOIN	SENSITIVE	
TICARCILLIN+CLAVULANIC ACID		RESISTANT

What is the most appropriate antibiotic therapy for this child?

A. Antibiotics are not indicated
B. Repeat culture
C. Start nitrofurantoin prophylaxis
D. Treat with co-trimoxazole
E. Treat with gentamicin
F. Treat with nitrofurantoin
G. Treat with one of the sensitive second-line intravenous antibiotics

QUIZ 3. A Spot Diagnosis

This 8-year-old boy was referred to the paediatric clinic for poor school performance while attending the dental clinic for evaluation of missing teeth.



What is the underlying condition for his problems?

A. Congenital rubella syndrome
B. Congenital syphilis
C. Down syndrome
D. Foetal alcohol syndrome
E. William syndrome
F. Foetal warfarin syndrome
G. Noonan syndrome

(Answers are given in the last page)

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024
ISSN 1800- 4903

Case Report

A Case of Primary Cutaneous Mucormycosis in a Type II Diabetes Mellitus Patient

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Abstract:

Mucormycosis is a rapidly progressive, angioinvasive, often fatal fungal infection caused by a ubiquitous filamentous fungus belonging to the order Mucorales, giving rise to rhinocerebral, pulmonary, cutaneous, gastrointestinal, disseminated and other rare clinical manifestations, especially in immune-compromised individuals. Cutaneous manifestation is uncommon and rarely reported in Sri Lanka. Treatment involves medical management combined with surgical interventions. Here we report a case of a patient who had cutaneous mucormycosis involving the left lower limb following trauma, leading to above-knee amputation.

Case description

A 65-year-old male, a known patient with diabetes mellitus who was not on regular follow up presented with a history of accidental fall into a sewage pit with impact to the medial aspect of his right knee. On examination, there was a hematoma spanning 3 x 4 cm. X-rays did not show evidence of any fractures. The hematoma was managed conservatively. Three days later the hematoma became painful and swollen. The white cell count was 18,000 x 103/mm3, haemoglobin 9.8 g/dL with indices showing microcytic hypochromic red cells. The inflammatory markers were elevated. His renal and liver functions were normal; thus he was offered hematoma evacuation with wound debridement. Even though he used to have adequate blood sugar control with metformin alone, his blood sugar levels were high since admission. His FBS was 296 mg/dL and he was converted to insulin therapy in liaison with the endocrine team. Following this, the blood sugar levels were well under control.

The wound inspection revealed an unusual necrotic floor giving the appearance of an eschar. The eschar was completely excised with bleeding margins leaving behind the ligaments of the knee joint. Repeated inspection revealed the eschar with a whitish filamentous layer reappearing leading to a suspicion of a fungal infection. Fungal cultures confirmed the presence of Mucorales in the wound and he was commenced on Liposomal Amphotericin B under the guidance of the microbiologist with daily monitoring of renal functions. He didn't have any clinical evidence of chest involvement then. Following the diagnosis of mucormycosis he was offered VAC dressing, after 7 days the dressing was taken off for inspection, yet the wound bed didn't show much

improvement. In the meantime, he developed myocardial infarction and following stabilization, the patient was offered an above-knee amputation to curtail the infection.

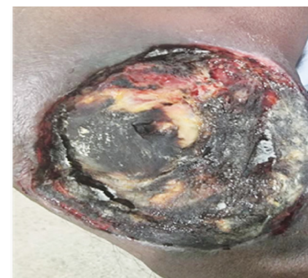

Figure 1. Wound following hematoma evacuation and primary wound debridement.

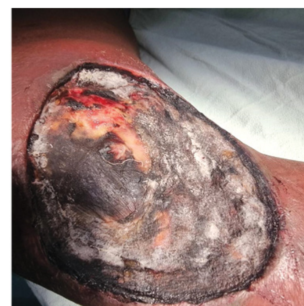

Figure 2. Wound following second wound debridement

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Discussion

Mucormycosis was first described by Furbinger in 1876 when the right lung of a patient who died of cancer in Germany showed a hemorrhagic infarct with fungal hyphae. The first case of disseminated mucormycosis was published by Richard Paltauf in 1885 who coined the name “mycosis mucorina” (1).

Mucormycosis is caused by a fungus belonging to the order Mucorales. Mucorales species are vasotropic, causing tissue infarction as a result of vascular thrombosis (2). Numerous risk factors are identified including prolonged or profound neutropenia, diabetes mellitus (type I & II), metabolic acidosis, malnutrition, steroid usage, solid organ transplant recipients, patients with haematological malignancies with or without stem cell transplant, major trauma, iron overload, illicit intravenous drug use, etc., and sometimes in people with no apparent immunological defects (3). According to the location of the disease, mucormycosis is classified into several clinical syndromes: rhinocerebral, sinopulmonary, gastrointestinal, cutaneous, disseminated, and miscellaneous forms (4).

Our patient presented with primary cutaneous mucormycosis, a rare entity following trauma due to direct inoculation of fungal spores, whereas in secondary cutaneous mucormycosis dissemination occurs more commonly from a rhinocerebral infection. The organism invades the blood vessels and proliferates into it thus giving rise to vascular thrombosis impeding the blood supply to the wound bed and leading to tissue infarction (5). A high amount of clinical suspicion by the appearance of the eschar is paramount in the diagnosis with confirmation with fungal studies.

The mainstay of management involves antifungal therapy with liposomal amphotericin B together with surgical debridement or amputation, if necessary, in case of cutaneous mucormycosis with control of the predisposing factors in our case being uncontrolled diabetes mellitus (6). Unfortunately, our patient had to lose his limb, as the disease was progressing even with antifungal therapy with repeated surgical treatments to save his life.

Conclusion

Cutaneous mucormycosis is a rare clinical entity, where even with antifungal therapy and surgical debridement the morbidity and mortality remain significant. This case highlights the important diagnostic considerations when a patient presents with an eschar-like lesion.

References

1. Skiada A, Pavleas I, Drogari-Apiranthitou M. Epidemiology and Diagnosis of Mucormycosis: An Update. J Fungi (Basel). 2020 Nov 2;6(4):265. doi: 10.3390/jof6040265. PMID: 33147877; PMCID: PMC7711598.
2. George Petrikkos, Anna Skiada, Olivier Lortholary, Emmanuel Roilides, Thomas J. Walsh, Dimitrios P. Kontoyiannis, Epidemiology and Clinical Manifestations of Mucormycosis, Clinical Infectious Diseases, Volume 54, Issue suppl_1, February 2012, Pages S23–S34, https://doi.org/10.1093/cid/cir866
3. Sharma A, Goel A. Mucormycosis: risk factors, diagnosis, treatments, and challenges during COVID-19 pandemic. Folia Microbiol (Praha). 2022 Jun;67(3):363-387. doi: 10.1007/s12223-021-00934-5. Epub 2022 Feb 26. PMID: 35220559; PMCID: PMC8881997.
4. L Gupta K, Gupta A. Mucormycosis and acute kidney injury. J Nephropathol. 2012 Oct;1(3):155-9. doi: 10.5812/nephropathol.8111. Epub 2012 Oct 1. PMID: 24475407; PMCID: PMC3886153.
5. Alina Beliavsky, Sigmund Krajden, Zared Aziz, James A. Scott, Richard Summerbell. Cutaneous mucormycosis in the immunocompromised host: An important cause of persistent post traumatic skin lesions. Medical Mycology Case
6. Reports.https://doi.org/10.1016/j.mmcr.2023.100607
7. Sara Harrar , Nidae Mimouni , Rabie Kharchi , Imad Abkari , Awatif El Hakkouni. Challenges in the management of severe cutaneous mucormycosis: A case of rapid progression in uncontrolled diabetes mellitus with polymicrobial implications. Medical Mycology Case Reports. https://doi.org/10.1016/j.mmcr.2024.100643.

Acknowledgements

The authors acknowledge the guidance given by the Consultant Microbiologists, Dr.Vaithehi Rajeevan and Dr.S.Devakanthan.

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024
ISSN 1800- 4903

Case Report

Priapism in newborn

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Introduction

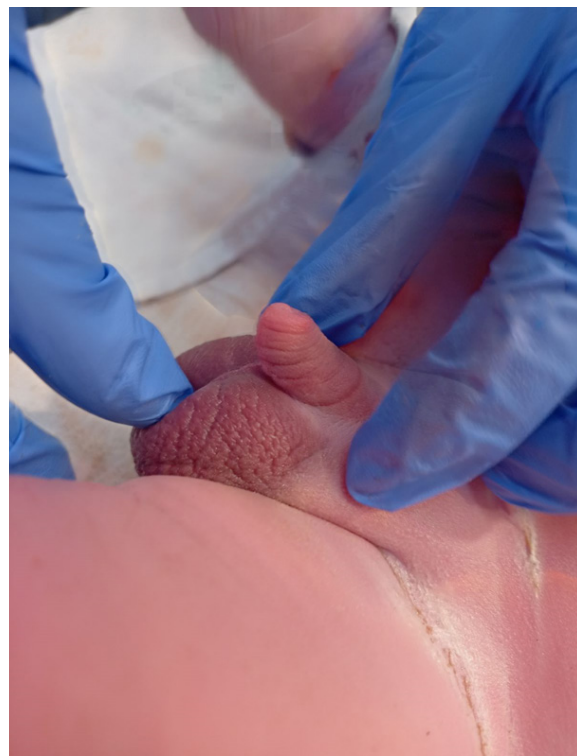
Priapism is defined as a "prolonged and persistent penile erection that is unrelated to sexual interest or stimulation". Neonatal priapism, defined as a persistent penile erection lasting at least 4 hours during the first 28 days of life, is a rare condition. (1) This condition is extremely rare in newborns and occurs very rarely in paediatrics outside of the sickle-cell population. (2) Priapism is a serious medical condition that necessitates evaluation and, in some cases, urgent medical attention. (3)

Priapism can be divided into two types. (i) Ischaemic priapism (veno-occlusive) (low-flow) is the most prevalent form of priapism; it is usually characterised clinically by a painful, rigid erection with absent cavernous blood flow. Ischaemic priapism that lasts more than 4 hours indicates a compartment syndrome that necessitates immediate medical intervention. (ii) Nonischemic (arterial) (high-flow) priapism is an unusual form of priapism caused by unregulated cavernous inflow. Erections are usually painless and not completely rigid. Nonischemic priapism necessitates evaluation. (3) We report a case of newborn priapism on the first day of life in Victoria, Australia.

Case report

The patient was born to a 25-year-old mother with G3P0 as dichorionic and diamniotic twins. The antenatal morphology scan was normal. The babies were delivered via elective cesarean section. The newborn's birth weight was 2230g. The initial physical examination revealed no abnormalities. The testes were descended, and the colour and appearance of the penile shaft and scrotal were normal. We noticed the infant had a persistent erection 12 hours after birth (Fig. 1). The physical examination revealed an erect penis with no cyanosis, colour changes, or tenderness. The full blood examination samples were clotted twice and the serum bilirubin level was slightly elevated. The newborn urinated frequently with a normal stream and appeared in no pain. As the newborn was otherwise healthy and feeding normally, conservative management was implemented with input from the urology team at the tertiary center. No further investigations were conducted; however, the medical team regularly examined the newborn for any changes in clinical condition. After 56 hours of observation, the priapism disappeared. On discharge, the physical and neurologic examinations were normal. During the follow up the baby had no complications and normal growth and development.

Figure 1



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Discussion

With the slightest tactile stimulation, newborn males will frequently have erections. A full bladder usually causes an erection. This physiological erection typically lasts a few minutes and disappears quickly after the stimulus is removed. (4) Priapism is treated as a urological emergency. Treatment aims to prevent penile disfigurement and preserve future erectile function. (5) The majority of newborns with persistent penile erections have an idiopathic cause. However, among the identified aetiologies, polycythemia may be the most common. Sickle cell disease, birth trauma, respiratory distress syndrome, umbilical artery catheterization, metabolic hypoxia, parenteral nutrition, and drugs have all been associated with older children. Nuckols (1876) described the first case of neonatal priapism, which was thought to be caused by congenital syphilis.

There are two types of priapism: ischaemic and non-ischaemic. These can be differentiated by typical physical examination findings, Doppler ultrasound, and cavernosal blood gas analysis. In our case, we did not do further investigations as the newborn was well otherwise and the repeated physical examinations were unremarkable. The most common cause of priapism in children is sickle cell disease. This is distinguished by the prevalence of sickle haemoglobin. Priapism develops in 27.5% of sickle cell disease children. (3)
Most of the cases of neonatal priapism can be managed with observation alone as in our case. There was a case of newborn priapism managed with the administration of a 1% ketamine hydrochloride solution intravenously. Intravenous ketamine hydrochloride treatment of idiopathic priapism resulted in rapid detumescence. During the follow-up of our case, there were no further episodes of priapism noted.

Conclusion

Management of priapism in newborns by observation alone seems to be the best approach for most of the cases. If the newborn's priapism is caused by polycythemia, red cell volume reduction should be the treatment of choice. Because newborn priapism is uncommon, a paediatrician may be inexperienced in evaluating and managing it. A multidisciplinary approach involving paediatric urologists may result in better outcomes for the patient and family.

Reference

1. Gbadoé A D, Tongon K, Guédéhoussou T, Bagny A E, M 5 , N'zonou M GK, Glidja. Issue 1 | 1 of 5 J Pediatr Neonatal. J Pediatr Neonatal. 2020;2(1):1–5.
2. Dust N, Daboval T, Guerra L. Evaluation and management of priapism in a newborn: A case report and review of the literature N Dust, T Daboval, L Guerra. Evaluation and management of priapism in a newborn: A case report and review of the literature [Internet]. Vol. 16, Paediatr Child Health. 2011. Available from: https://academic.oup.com/pch/article/16/1/e6/2639483
3. Aktoz T, Tepeler A, Gü Ndog ˘ Du EO, Ozkuvancı U, Mü Slü Manog ˘ Lu & AY. Priapism in the newborn: management and review of literature.
4. Burgu B, Talas H, Erdeve O, Karagol BS, Fitoz S, Soygur TY. Approach to newborn priapism: A rare entity. J Pediatr Urol. 2007 Dec;3(6):509–11.
5. Hennick T, Cardona-Grau D, Arich M, Swana HS. Priapism in Neonates: Case Reviews and Management Recommendations [Internet]. Vol. 5, JSM Urol Res. 2019. Available from: https://www.researchgate.net/publication/341215639

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024
ISSN 1800- 4903

Case Report

A Rare Case of Synchronous Gastrointestinal Stromal Tumour, Liver Haemangioma and Sigmoid Colon Adenocarcinoma

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Abstract:

Multiple primary tumours refer to the occurrence of more than one tumour in the same individual either at the same time (synchronous) or at different times (metachronous) (1). The incidence of multiple primaries in a cancer population varies between 2.4% and 8% (5). This case report discusses the management of a 61-year-old woman who presented with upper abdominal pain and melaena and ultimately ended up being diagnosed with three different tumours of various histological origins, which are liver haemangioma, gastrointestinal stromal tumour of the stomach and moderately differentiated adenocarcinoma of the sigmoid colon. This case explains the importance of a systematic approach to diagnosis and management and highlights the limitations of imaging studies in diagnosing synchronous primary malignancies. It emphasises the significance of multidisciplinary collaboration in optimising patient outcomes.

Case Description

A 61-year-old lady with hypertension was investigated for upper abdominal pain and melaena. The initial ultrasound scan showed an 8.1 cm x 8.6 cm liver mass. However, subsequent CECT imaging identified a liver haemangioma, lesions in the stomach and sigmoid colon thickening. Biopsies through complete endoscopies confirmed the presence of a gastrointestinal stromal tumour (GIST) in the stomach and a tubular adenoma with low-grade dysplasia in the sigmoid colon.

A multidisciplinary team consisting of general surgeons, an onco-surgeon, an oncologist, radiologists and a histopathologist, decided on conservative management for the liver lesion with follow-up scans, surgical resection for the GIST and endoscopic resection of the sigmoid colon tumour.

An intraoperative abdominal staging was performed by the surgical team, which revealed a mass in the rectosigmoid junction clinically involving the serosa. Endoscopic intervention was deemed inadequate leading to resection and primary anastomosis with diversion ileostomy.

The histopathological analysis revealed a GIST in the stomach. Resection of the sigmoid colon tumour showed a moderately differentiated adenocarcinoma with clear resection margins that did not involve the serosa. Lymph nodes were free of tumour cells. The TNM staging for the sigmoid colon tumour was pT3 pNo pMx.

Postoperatively, the patient recovered well and was started on imatinib therapy. Ileostomy reversal was done after six months.

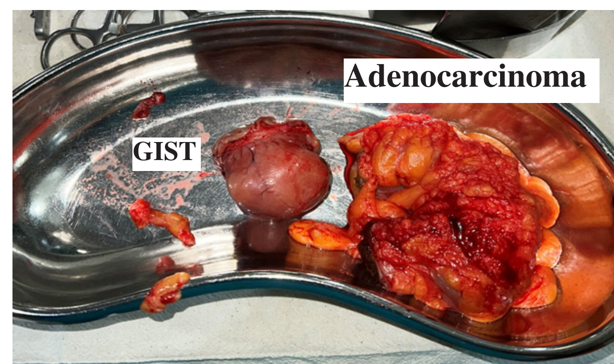

Figure 1. Resected specimens of the tumours

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Discussion

The synchronous occurrence of liver haemangioma, GIST, and sigmoid colon adenocarcinoma is a rare phenomenon, and there is limited literature available to guide clinical management (2). Gastrointestinal stromal tumours (GISTs) are mesenchymal tumours that arise from the gastrointestinal tract and are commonly found in the stomach and small intestine (3). On the other hand, sigmoid colon adenocarcinomas are epithelial tumours that arise from the colorectal mucosa (4). The coexistence of these two distinct malignancies in our patient demands a comprehensive diagnostic workup and an individualised treatment approach.

The multidisciplinary team was instrumental in developing a suitable management plan for this case. Intraoperative assessment guided the decision-making process for the sigmoid colon tumour, ultimately leading to resection with primary anastomosis.

This highlights the importance of accurate histological diagnosis in guiding treatment decisions and predicting patient prognosis and explains the limitations in imaging studies in diagnosing colonic malignancies.

Conclusion

Synchronous primary neoplasms, such as liver haemangioma, GIST, and sigmoid colon adenocarcinoma, require a thorough and collaborative approach to diagnosis and management. Diagnosing them promptly is crucial, as planning individualised treatment, and providing regular follow-up, ensures the best outcome for patients. This case illustrates the successful implementation of such an approach, which resulted in complete tumour removal and a positive post-operative recovery. This case also highlights the limitations of certain imaging studies at even at a tertiary-care centre.

References

1. Hao, L., Zhang, L., Xu, C., Jiang, M., Zhu, G., & Guo, J. (2023). Multiple synchronous primary malignant neoplasms: A case report and literature review. Oncology Letters, 26(4). https://doi.org/10.3892/ol.2023.14014
2. Salemis, N. S., Nakos, G., Katikaridis, I., & Zografidis, A. (2016). Synchronous occurrence of appendiceal mucinous cystadenoma, with colon adenocarcinoma and tubulovillous rectal adenoma: Management and review of the literature. Journal of Natural Science, Biology and Medicine, 7(2), 173–175. https://doi.org/10.4103/0976-9668.184705
3. Rubin, B. P., Heinrich, M. C., & Corless, C. L. (2007). Gastrointestinal stromal tumour. In Lancet (Vol. 369, Issue 9574, pp. 1731–1741). Elsevier B.V. https://doi.org/10.1016/S0140-6736(07)60780-6
4. Yildirim, M., & Cinar, A. (2022). Classification with respect to colon adenocarcinoma and colon benign tissue of colon histopathological images with a new CNN model: MA_ColonNET. International Journal of Imaging Systems and Technology, 32(1), 155-162.
5. Okeke, F., Nriagu, V. C., Nwaneki, C. M., Magacha, H. M., Omenuko, N. J., & Anazor, S. (2023). Factors That Determine Multiple Primary Cancers in the Adult Population in the United States. Cureus. https://doi.org/10.7759/cureus.44993

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024

ISSN 1800- 4903

Case Report

A case of surgically and medically managed bilateral idiopathic masseter hypertrophy

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Introduction

Masseter muscle hypertrophy (MMH) is an uncommon asymptomatic benign enlargement of one or both masseter muscles causing aesthetic and functional impairment. (1)(2) It affects both females and males generally in adults between 20s and 40s. (3) Legg was the first to document this condition in 1880, he observed a vague tumor-like mass in the masseter and temporal muscles of a 10-year-old girl and bony enlargement on both angles of the mandible, aligning with the insertion point of the masseter muscle, that hardened when the patient clenched her teeth. (2)(4) The exact etiology is unknown. It could be temporomandibular disorders, malocclusion, idiopathic, congenital, parafunctional habits, or mental stress. (1)(2) There are different treatment modalities, ranging from basic pharmaceutical interventions to more complex surgical procedures, that have yielded varying levels of effectiveness. (2)

Case presentation

Eight years back, a female child presented to the oral and maxillofacial clinic (OMF) teaching hospital Karapitiya at the age of thirteen years with a bilateral slowly progressing painless swelling on the angle of the mandible for three years duration without any history of trauma, long-term emotional stress, parafunctional habits, or family history of masseter hypertrophy. She had no features of parotid gland pathologies or intraoral lesions. The examination findings revealed an asymmetry square-shaped facial profile with a diffused, firm, non-tender, swelling over the bilateral angles of the mandible, more on the left side without any signs of inflammation, pulsation, or bruits. It became more prominent on the clenching of the teeth. There was no mouth deviation or deflection or discernible facial nerve palsy, or ear lobe elevation. Intra-orally, the patient had centric occlusion without any significant pathologies.

Over the years, she had no history of a sudden increase in size, or difficulty in mastication, swallowing, or speech. However, the patient had on-and-off clicking sounds on bilateral temporomandibular joints (TMJ) and slightly restricted mouth opening with muscle stiffness for the last 6 years.

It was diagnosed as bilateral masseter hypertrophy clinically and radiologically with an orthopantomogram (OPG) and ultrasound scan (USS). She was treated initially with percutaneous Botulinum Toxin A(BTA) injection 20 U on the left side and 10 U on the right side in the lower three-point region of the masseter muscle while palpating and noticed a significant reduction of the size of the masseter muscle bilaterally within the three to four weeks of the treatment. However, the effectiveness of the drug wore off completely in six months and enlargement of muscle reappeared bilaterally. Therefore, the treatment was repeated every 3-6 months for 3 years, then increased the dose a stepwise step to 40 U and 30 U respectively for four years as the achievement of effectiveness was reduced with time for the same dose. However, later it was relapsing and failing to achieve a patient's acceptable esthetic outcome with the medical treatment.

An OPG (Fig1) revealed a square-shaped mandible with bilateral prominent flaring of the angle of the mandible more on the left side, and an Ultra Sound

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Scan (USS) of the face and neck revealed increased thickness of the bilateral masseter muscles without any other pathologies.

Finally, as patient's request as well as there was a bilateral bony hyperplasia, Bilateral partial resection of masseter muscles with bi-cortical ostectomy of the angles of the mandible through an extraoral approach was done under general anesthesia.

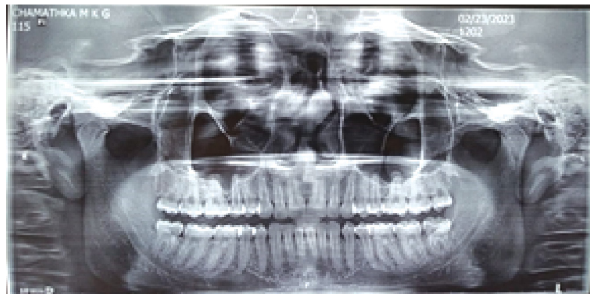

Figure 1 Preoperative OPG

Surgical procedure

On the right side, nearly 5cm a modified sub-mandibular skin incision was made just below and parallel to the inner lower border of the angle of the mandible. (Fig2). Supra platysma dissection was done (Fig3) to preserve the marginal mandibular nerve. Then, the platysma muscle was incised above and parallel to the lower border of the mandible and the lower bulky part of the masseter muscle was excised from the pterygoid-masseteric sling. (Fig4)

The bi-cortical bony cut was done on the angle of the mandible in a curve line connecting a point about the lower one-third height of the posterior border of the ramus and the anterior portion of the ante-gonial notch via a piezoelectric surgery device while preserving the mandibular canal. (Fig5) The lower end of the masseter muscle and medial pterygoid muscle were sutured together with a continuous 3/0 monocryl (poliglecaprone) suture to reduce the risk of recurrence and maintain the functional status of the muscle. Then, layer-by-layer suturing was done. (Fig6)

On the left side, a larger part of the masseter muscle and bony segment were removed than on the right side with the same procedures.

Postoperatively Antibiotics, Analgesics, and IV. Dexamethasone were prescribed. Tight dressing for 48 hours to reduce swelling and mouth-opening exercises for more than 2 weeks were recommended.

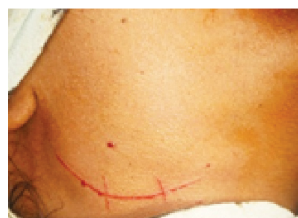

Figure-2 skin incision

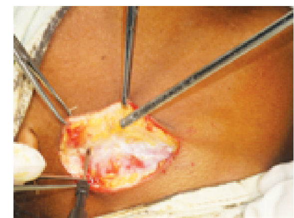

Figure-3 Supra platysma dissection

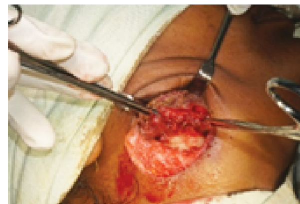

Figure-4 lower bulky part of the masseter excision.

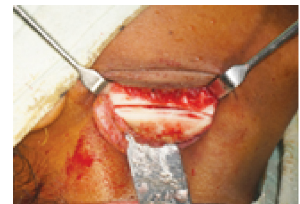

Figure-5 Bony segment removal.

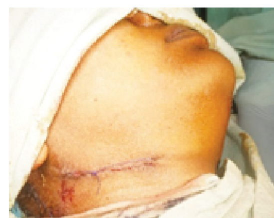

Figure-6 layer by layer closing done excision.

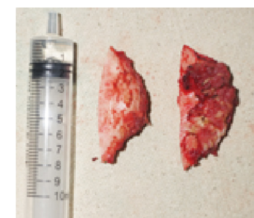

Figure-7 Right, Left bony segment

Figure-8 Right excised muscle bulky

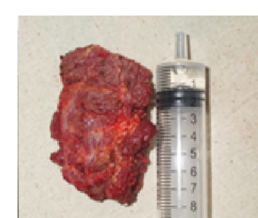

Figure-8 Left excised muscle bulky

Discussion

Baek at el. analyzed 108 documented cases, Bilateral involvement was noted in 60% of instances. 4% were less than 10 years old. 57% of the patients were male. (5)(6) Our case is rare as the patient is a female and she had the onset of the disease around 10 years. There are two categories such as congenital and acquired. (2) However, our case is an idiopathic with unknown etiology. The differential diagnoses include tumors arising from muscle (masseter), vascular, bony, or salivary gland diseases.(1)(2) Diagnosis can be made from clinical history, examination, and OPG.(2) The palpation of the masseter muscle, while the patient

clenches the teeth is the best diagnostic test as the muscle is more noticeable during contraction. (2) But to exclude other pathologies USS, CT, MRI needed.(1)(2)(5)

Treatment options can vary according to the etiology. Non-surgical medical therapies are BTA Injection, anxiolytic drugs, and analgesics. Non-medical are psychological counseling, mouth guards, physical therapy, and occlusal adjustments(1)(2)(5), radiofrequency volumetric reduction.(7)

BTA therapy is a less invasive modality. Moore and Wood proposed the initial application of Type A Botulinum toxin (BTA) to address masseter hypertrophy in 1994.(2) BTA hindering the release of acetylcholine into synaptic junctions results in partial denervation, subsequent selective muscle paralysis, and reversible muscle atrophy. The onset of its effects varied between 2 to 4 weeks. (3)The most significant drawback is the temporary nature of its effects, as the peak efficacy of BTA typically manifests around three months after a single injection session, with effects lasting for a duration of 6 to 12 months (2) then allowing re-hypertrophy due to the resynthesis of neuromuscular synapses and the development of neutralizing antibodies (NAb) from repeated injections. (7)(8) Results from a phase 2 dose-escalation Asian study indicated that efficacy in MMH was sustained for 9 months with doses of 72 and 96 U of onabotulinumtoxinA, in contrast to a duration of 180 days observed with doses of 24 and 48 U. The number of BoNT-A injection sites and dosage could vary based on the thickness of the masseter muscle and the extent of hypertrophy. In studies involving Asian individuals, the total dose of BoNT-A ranged from 10 to 45 U. (3) Therefore, repeated administration is required to sustain the desired decrease in MMH. But the repeated long-term therapy is costly.(3)(7) In our case, after injecting the botulinum toxin of 10-40U, the effect of treatment started to wear away in 3-4 months and completely reverted to the original condition in 6 months.

Robust meta-analysis confirmed the occurrence rate of NAb development at any time after treatment was minimal, ranging from 0% to 1.4%. Out of 5876 participants across all 10 indications, only 27 individuals (0.5%) exhibited NAb formation subsequent to treatment.(8)

Surgery can be through an Intraoral or Extraoral approach, the partial excision of the masseter muscle without or with reduction osteoplasty in cases of bony hyperplasia of the mandibular angle.(2) In 1947, Gurney conducted a masseteric resection via a submandibular skin incision, and removal of 3/4 to 2/3 of the muscle mass. Beckers adopted an intraoral approach to prevent facial nerve injury and minimize facial scarring. (2) By 1951, Converse utilized the intraoral approach to remove the masseteric muscle along with the bone. Adams in 1950 suggested mandibular angle osteotomy. Wood, in 1982, proposed a technique involving the removal of the bony protuberance of the mandibular angle without excising any parts of the masseter muscle. (2)

In the intra-oral approach no scar formation, less risk of facial nerve damage but less visualization and access may need an endoscopic approach.(1)(2)

An extraoral approach can be a submandibular incision, Risdon offering better direct visualization and easy access for osteoplasty. However, have a high risk of damaging the facial nerve and Scar formation.(1) But in our surgical procedure scar will be hidden below the lower border of the mandible and supra-platysma dissection highly reduces the risk of nerve injury. As well as Common disadvantages associated with surgical reduction, such as risks of general anesthesia, postoperative bleeding, swelling, hematoma, infection, and limited mouth opening, (1)(2)(7) were not encountered in this case. The patient expressed satisfaction with the outcome.

Kim et al.'s study indicated that surgical intervention could reduce up to two-thirds or more of the total volume, whereas botulinum toxin injection could achieve a maximum reduction of only one-third. Surgical intervention is recommended for severe cases. Both botulinum toxin injection and radiofrequency electrocoagulation target solely the muscular aspect of the deformity, leading to a restricted outcome in cases where there is an accompanying bone deformity. The surgical treatment has longevity and predictability.(3)(9) The utilization of radiofrequency energy for muscle reduction is long-lasting with fewer side effects in comparison to surgical procedures.(2)

Conclusion

When MH leads to bone appositional changes, the efficacy of BTA treatment alone is typically limited, thus necessitating consideration of surgical intervention.

Facial disfigurement causing psychological impact; therefore, treatment is needed.

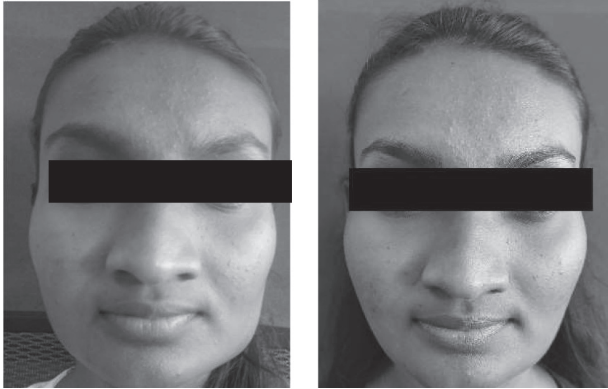

Figure-10,11 Front view pre and postoperative photograph.

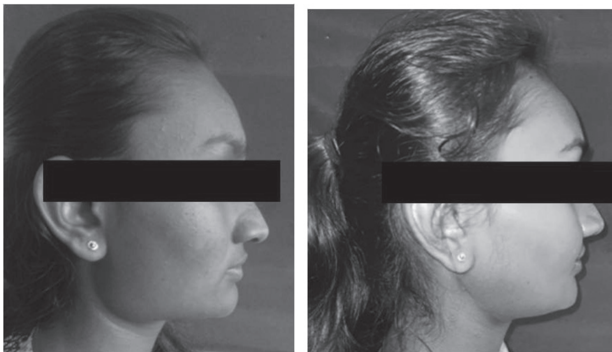

Figure-12,13 Right Lateral view pre and postoperative photograph

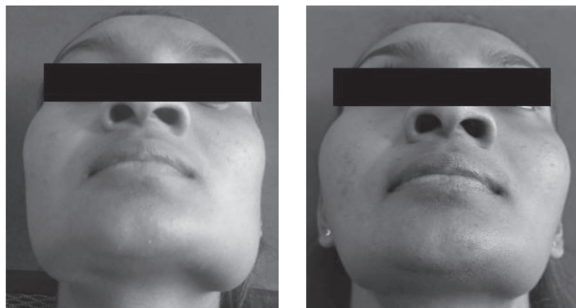

Figure 16,17 Upward view pre & post-op

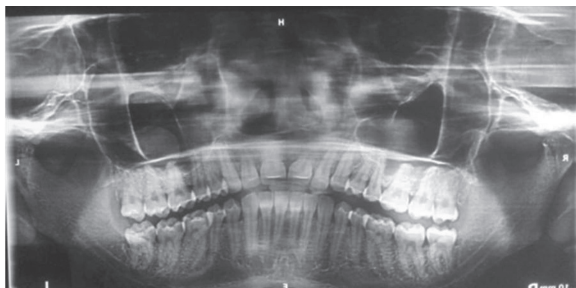

Figure 18 Post-operative OPG

References

1. Anehosur V, Mehra A, Kumar N. Management of Masseter Muscle Hypertrophy and Role of Adjunctive Surgical Procedures. Craniomaxillofacial Trauma Reconstr Open. 2020;5:247275122091314.
2. Kundu N, Kothari R, Shah N, Sandhu S, Tripathy DM, Galadari H, et al. Efficacy of botulinum toxin in masseter muscle hypertrophy for lower face contouring. J Cosmet Dermatol. 2022;21(5):1849–56.
3. Wu Y, Zeng D, Wu S. Botulinum Toxin Type A for the Treatment of Masseter Muscle Prominence in Asian Populations. Aesthetic Surg J Open Forum. 2023;5:1–7.
4. Waldhart E, Lynch JB. Benign Hypertrophy of the Masseter Muscles and Mandibular Angles. Arch Surg. 1971;102(2):115–8.
5. Panchbhai AS. Case Report : Masseter hypertrophy : A case and review [version 1 ; peer review : 1 approved , 1 approved with reservations]. 2024;(May):1–9.
6. Fedorowicz Z, van Zuuren EJ, Schoones J. Botulinum toxin for masseter hypertrophy. Cochrane Database Syst Rev. 2013;2013(9).
7. Statement G. The East of England Hosted by GUIDANCE STATEMENT Botulinum A for treating masseteric hypertrophy (MH) and temporomandibular disorders (TMD) in adults aged 18 and over PAC recommendations Key points. :1–14.
8. Jankovic J, Carruthers J, Naumann M, Ogilvie P, Boodhoo T, Attar M, et al. Neutralizing Antibody Formation with OnabotulinumtoxinA (BOTOX®) Treatment from Global Registration Studies across Multiple Indications: A Meta-Analysis. Toxins (Basel). 2023;15(5).
9. Sreejith Kumar G, Pillai B. Masseteric Hypertrophy: An Orthodontic Perspective. J Indian Orthod Soc. 2012;46(December):233–7.

BATTICALOA MEDICAL JOURNAL
Established 2005
Volume 18, Issue 01 July 2024
ISSN 1800- 4903

Review Article

The Effectiveness of Simulation-based Learning in Clinical Education

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Abstract:

Health professional education methods are changing steadily, and teachers should reevaluate their teaching methods with the needs of the world. Simulation-based learning is a widely practised teaching method where learning takes place in a risk-free environment. Students learn skills using manikins, standardised patients and role-playing with peers.

The objective of this narrative review was to study the effectiveness of simulation-based learning (SBL) in clinical education and the challenges of creating a simulation lab. Publications from 2015 to 2023 were searched in PubMed and Google Scholar using the search terms 'Simulation-based learning' and 'clinical education'.

Eight articles matching the objective were studied. Simulation-based learning has many advantages that can be incorporated into the curriculum of health professional education. It was evident that simulation has been stated to improve knowledge, skills, and attitudes among medical and nursing students. It increases students' confidence as well as critical thinking and reasoning abilities. It helps the students develop teamwork, leadership, and interpersonal skills. Using Standardized Patients in simulation-based learning has many benefits. When SPs are used, systematic ways of education will be practiced. Interaction with SPs develops a holistic way of approaching patients, and students can learn about patient-centred care, which is essential for practice. There are administrative difficulties in creating a simulation lab.

Simulation-based learning supports the new trends in learning, as we see nowadays. Many programmes have incorporated simulation into their training. SBL creates an opportunity to practice before applying it in real-life situations, where the learners can improve their skills and knowledge, which may lead to deeper understanding and greater achievement. Though simulation has benefits, there are challenges to creating a simulation lab.

Keywords: Clinical education, Confidence, Feedback, Safe environment, Simulation-based learning (SBL), Standardized patients (SP)

Introduction

Clinical education is adapting to new learning trends worldwide. There is rising evidence that the traditional way of gaining clinical knowledge and skills is facing challenges today. Novel methods like simulation-based learning (SBL) are considered more effective in learning clinical skills. Simulation-based learning methods make students become critical, independent thinkers and let them take ownership of their learning process.

It is a learning method in a risk-free environment created for skills development. Students learn by practising in manikins, standardized patients and role-playing with peers. Learning happens more when students feel that they are in a safe environment and they could practice repeatedly without harming anyone (Durham & Alden, 2008). Likewise, it increases confidence when they do the procedure with real-life patients. Students may learn and practice with real patients or in a simulated environment. Experiential

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learning creates new ways of working with students and understanding them by incorporating innovative methods such as simulation (Kolb, A., & Kolb, D. 2017). In 2011, the World Health Organization (WHO) stated that simulation can support education since students prefer to learn in a safe, supportive, and engaging environment. This finding is further strengthened by the studies which were done later.

Simulation-based learning improved certain competencies in nursing students when considering the nursing curriculum. However, the SBL also encounters challenges; in some places, the nursing programme faces challenges in meeting the learning objectives in clinical teaching due to the number of staff and limited clinical placements (Jamshidi et al., 2016). When these challenges arise, it's necessary to meet the learning objectives by learning in a simulated environment. Ultimately, the students do the learned procedure in a clinical setting with more attentiveness. A recent study showed that students need to be given opportunities to master the skills before encountering actual patients (Ayaz & Ismail, 2022), which the student can get through SBL. As it was noticed that communication and interpersonal skills are vital in health professional training (Chichirez & Purcărea, 2018), we could achieve this outcome by simulated patients where the students could get immediate feedback.

Method

The objective of this narrative review was to study the effectiveness of simulation-based learning (SBL) in clinical education and the challenges of creating a simulation lab. Publications from 2015 to 2023 were searched in PubMed and Google Scholar using the search terms 'Simulation-based learning' and 'clinical education'.

Results

A narrative review identified articles relevant to our study from 2015 to 2023 (n=8).
Simulation-based learning has many advantages that can be incorporated into the curriculum of health professional education.

Promotes student-centred Learning

SBL is a student-centred learning method that promotes acquiring knowledge, skills, and confidence (Gharaibeh et al., 2017), an important aspect of clinical training. In student-centred learning, the student takes ownership of the learning process, and the teacher acts as a facilitator. This type of learning improves relevance and retention.

Increases confidence and relieves anxiety

SBL increased students' confidence as the environment provided opportunities to make and correct mistakes without causing harm. Students felt that they were in a safe environment when they had simulation-based training (Ayaz et al., 2022). SBL was shown to relieve anxiety levels in students learning breast and pelvic examinations. SBL helped students develop self-confidence and learning satisfaction (Orsi et al., 2020).

Promotes critical thinking and clinical reasoning

Moreover, SBL promotes critical thinking and reasoning abilities, as there is room for seamless discussion, unlike at the bedside. Students made clinical decisions and planned and carried out treatment during the SBL session on emergency medicine (Kodikara, et al 2020).

Opportunity for feedback

Feedback is critical in the learning curve. Simulation-based learning provides ample chances for giving feedback to the learner. A study among medical students showed that SBL could provide training and feedback when learners practice and experience real-life circumstances using various technologies, standardized patients (SP), peers, and video cameras to assess the improvement in skills. Simulation has been shown to improve knowledge, skills, and attitudes among medical and nursing students (Zafar, 2016).

Standardized patients (SP) give feedback useful for their advancement that they cannot get from real-life patients. Using SPs in simulation-based learning has many benefits. When SPs are used, systematic ways of education will be practiced. Interaction with SPs developed a holistic way of approach to patients, and students could learn patient-centred care, which is essential for practice (Peisachovich et al., 2016).

SBL as a tool for clinical skills training in un foreseen adversities

Simulation-based learning was found to be suitable when there was a limitation for clinical clerkship due to unforeseen circumstances like the COVID-19

pandemic. In Sri Lanka simulation-based learning is not practised widely due to the higher cost; however, low-fidelity simulators were found to be as effective. A study done on simulation-based learning in Sri Lanka also suggests that low-cost simulators can be incorporated to gain the benefits of simulation-based learning (Kodikara et al., 2020).

Challenges in creating a simulation lab

Creating a simulation lab takes time, effort and finance with well-coordinated and dedicated faculty. Recent literature reports that simulation is a very effective technique with well-collaborated faculty, clinical staff and simulation lab team (Persico, 2018). The institution will need administrative and technical support to implement simulation-based learning approaches. The facilitators need to be trained. During SBL, facilitators face difficulties engaging all students in active participation, preparing them before class, taking time for their preparation, etc.

Incorporation in curricula

Another major factor for the SBL training is that the curriculum should be organized to incorporate simulation-based learning. The curriculum should also support the new trends in learning, as we can see today; many nursing programmes have incorporated simulation into their training (Gharaibeh et al., 2017). Student-centred learning methods are becoming popular, and the invention of learning technologies provides opportunities to learn in an interactive and active learning environment.

Conclusion

It is necessary to incorporate predominantly student-centred learning approaches in contemporary medical education. SBL is becoming a more prevalent educational technique and an excellent student-centred method of getting clinical training. Clinical teachers have to be geared towards SBL, and students to recognize the effectiveness of SBL and willingly participate in such learning activities. Using Standardized Patients in SBL is becoming popular in the face of the difficulty of accessing real patients, as well as other benefits like feedback and standardization. Though simulation has benefits, there are challenges to creating a simulation lab.

References

1. Ayaz, O., & Ismail, F. W. (2022). Healthcare Simulation: A Key to the Future of Medical Education – A Review. Advances in Medical Education and Practice, 13(March), 301–308. https://doi.org/10.2147/AMEP.S353777
2. Chichirez, C. M., & Purcărea, V. L. (2018). Interpersonal communication in healthcare. Journal of Medicine and Life, 11(2), 119–122.
3. Durham, C. F., & Alden, K. R. (2008). Enhancing Patient Safety in Nursing Education Through Patient Simulation. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. http://www.ncbi.nlm.nih.gov/pubmed/21328731
4. Gharaibeh, B., Hweidi, I., & Al-Smadi, A. (2017). Attitudes and perception of baccalaureate nursing students toward educational simulation. Cogent Education, 4(1). https://doi.org/10.1080/2331186X.2017.1360063
5. Jamshidi, N., Molazem, Z., Sharif, F., Torabizadeh, C., & Kalyani, M. N. (2016). The Challenges of Nursing Students in the Clinical Learning Environment: A Qualitative Study. Scientific World Journal, 2016. https://doi.org/10.1155/2016/1846178
6. Kodikara, K. G., Karunaratne, W. C. D., & Chandratilake, M. N. (2020). Intermediate Fidelity simulation to Educate Emergency Management skills. Education in Medicine Journal, 12(1), 7–13. https://doi.org/10.21315/eimj2020.12.1.2
7. Kolb, D. A., & Kolb, A. Y. (2017). The Experiential Educator: Principles and Practices of Experiential Learning How You Learn Is How You Live View project Learning Sustainability View project. April, 565. https://www.researchgate.net/publication/316342276_The_Experiential_Educator_Principles_and_Practices_of_Experiential_Learning%0Ahttps://www.researchgate.net/publication/316342276
8. Orsi, T. D., Valadares, A. L. R., Orsi, P. M. E., Orsi, I. M. E., & Moura, A. S. (2020). Simulation-based Training for Pelvic and Breast Physical Examination: Effect on the Anxiety and Self-confidence of Medical Students. Revista Brasileira de Ginecologia e Obstetricia, 42(11), 739–745. https://doi.org/10.1055/s-0040-1718433
9. Peisachovich, E. H., Gal, R., & Johnson, S. (2016). Experiences of undergraduate nursing students of standardized patient methodology in their transition to nursing practice in Ontario Canada. Journal of Nursing Education and Practice, 7(3), 1–9. https://doi.org/10.5430/jnep.v7n3p1
10. Persico, L. (2018). A Review: Using Simulation-based Education to Substitute Traditional Clinical Rotations. JOJ Nursing & Health Care, 9(3). https://doi.org/10.19080/jojnhc.2018.09.555762
11. Zafar, M. (2016). Medical students' perceptions of the effectiveness of integrated clinical skills sessions using different simulation adjuncts. Advances in Physiology Education, 40(4), 514–521. https://doi.org/10.1152/advan.00097.2016

BATTICALOA MEDICAL JOURNAL

Established 2005

Volume 18, Issue 01 July 2024

ISSN 1800- 4903

Review Article

Benefits of meditation on health and for health professionals – A narrative review

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Abstract:

Meditation has been shown to be associated with better mental health, improved attention, greater emotional regulation, slower cellular aging and better academic performance.

The aim of this review was to provide insight into benefit of meditation on health as an adjuvant therapy, thus enabling health professionals to use this technique in their daily life and promote appropriate patients to practice meditation to experience its benefits.

A literature search was done with inclusion criteria of journals, searched on PubMed, Google scholar and books relating both meditation and health, published up to 28/04/2024.

Fifty-three articles matching the search were identified and studied. The review showed the benefit of meditation in preventive medicine activities, control of non-communicable diseases, slowing cellular aging and improving academic performance. Meditation was also found to be effective as an adjuvant in management of anxiety.
Keywords: meditation, health, health professionals, health benefits

Introduction

Meditation is a specific state of consciousness featured by deep relaxation and internalized attention. Emerging researches describe the neurobiological, physiologic, and genomic changes associated with mind-body practices, particularly meditation. Meditation has been shown to be associated with better mental health, improved attention, greater emotional regulation, slower cellular aging and better academic performance. The aim of this review was to provide insight into benefit of meditation on health as an adjuvant therapy, thus enabling health professionals to use this technique in their daily life and promote appropriate patients to practice meditation to experience its benefits. For those suffering from non-communicable and chronic disease meditation offers the possibility of entering into a state of inner coherence, favoring the integration of all biological rhythms and harmonizing functions of body. In the Indian Ayurvedic system of medicine, meditation is demonstrated as part of the medical procedure used for recovery and maintenance of health, as early as 3000 years ago.

The aim of different types of meditative practices is to change the flow of thoughts, generating new patterns of behavior and awareness. There are two general types of meditation: concentration meditation and mindfulness meditation. In concentration meditation, attention is focused on an object. Its continuous practice produces relaxation and mental clarity. Mindfulness meditation is directed toward opening of perception of contents that emerge in mind without the individual judging or reacting to his/ her own thoughts or emotions, thus undoing previous conditioned behavioral patterns and creating new strategies for coping with events of life. Integrating both general meditation techniques is contemplative meditation, a third type.

Meditation fulfills many purposes including becoming calm and peaceful, gaining greater concentration to improve performance, overcoming character defects and developing personality, and improvement in physical, mental, social and spiritual wellbeing.

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Methods

Literature search was done with inclusion criteria of journals, searched on PubMed, Google scholar and books relating both meditation and health, published up to 28/04/2024. Exclusion criteria include particular religion-based journals and books because of equanimity. Keyword combinations for search were meditation, health, benefit, medical professionals

Results

Fifty-three articles matching the search were identified and studied. The following themes emerged from the study.

Preventive medicine

Relaxation and meditation was shown to be a good and effective method for primary, secondary and tertiary preventive service programmes according to a literature review done by Yunesik Kang. The study focussed on a "mind-body approach" in the area of preventive medicine: which included relaxation and meditation for stress management in 2010 (1).

Non-communicable disease

In a pilot randomized control trial by Seung- Ho Lee and his team in 2019, its concluded that compared to health education, Brain-education based meditation (BEM) helps to lower LDL cholesterol level and the inflammatory gene expression in patients with hypertension and/or type 2 diabetes. Moreover, BEM induced positive effects on the self-reported mental/ physical states, warranting further study (2).

Enhancement of attention, memory and mood, and emotional regulation

In a randomized control study in 2019 by Julia C Basso, subjects (ages of 18-45) who were non-experienced meditators were randomized into either a 13-min daily guided meditation session or a 13-min daily podcast listening session (control group) for a total duration of 8 weeks. The effects of the daily meditation practice were examined relative to podcast listening, on mood, prefrontal and hippocampal functioning, baseline cortisol levels, and emotional regulation using the Trier Social Stress Test (TSST). Compared to the control group, it was found that 8 but not 4 weeks of brief, daily meditation decreased negative mood state, enhanced attention, working memory, recognition memory and decreased anxiety scores on the TSST. Furthermore, it is reported that meditation-induced changes in emotional regulation are more strongly linked to improved affective state than improved cognition (3).

Slowing cellular aging

Mindfulness meditation techniques appear to shift cognitive appraisals from threat to challenge, decrease ruminative thought, and reduce stress arousal. Mindfulness may also directly increase positive arousal states. The research team reviewed data linking telomere length to cognitive stress and stress arousal, and presented new data linking cognitive appraisal to telomere length. Given the pattern of associations revealed so far, it is proposed that some forms of meditation may have advantageous effects on telomere length by reducing cognitive stress and stress arousal, and increasing positive states of mind and hormonal factors that may promote telomere maintenance (4).

Meditation and academic performance

The study by Amit Kauts, started with 800 adolescent students; 159 high-stress students and 142 low-stress students were selected on the basis of scores obtained through Bisht Battery of Stress Scale (BBSS). Experimental group and control group were given pre-test in three subjects, i.e., Mathematics, Science, and Social Studies. A yoga module consisting of yoga asanas, pranayama, meditation, and a value orientation program was administered on experimental group for seven weeks. The experimental and control groups were post-tested for their performance on the three subjects mentioned above. The results show that the students, who practiced yoga performed better in academics. Six months of yogic practices (meditation, asanas, and pranayama) brought a feeling of well-being, a reduction in body weight, increased vital capacity, acceleration in endocrinal functions, and improvement in memory. (5).

Meditation as an adjuvant for panic anxiety syndrome

In a prospective randomized control study by Chandrabhushanin 2023, 110 patients with panic disorder were randomized into two groups, Group A (standard treatment + RM) and Group B (Standard treatment). The participants of both group participants were subjected to sleep quality score, Physical Health Questionnaire-9 score, Panic Disorder Severity Scale

(PDSS), and Hamilton Anxiety Rating Scale (HAM-A) questionnaires before starting the study (baseline) and at the end of the 8th week. Study groups were compared at baseline and at the end of 8 weeks. there was a statistically significant difference in mean z-scores of PDSS and post-HAM-A scores among the study groups at 8 weeks (P < 0.001). The composite score was created by adding the z-scores of pre- and post-PDSS and HAM-A. They found a statistically significant difference in post composite scores between the study groups (P < 0.001). Analysis of co-variance for PDSS and HAM-A among study groups showed statistical significance (P < 0.001). When used in conjunction with pharmaceutical treatments for the treatment of panic disorder, RM is a successful therapy. The key factors are adherence and motivation while being supervised by a licensed therapist (6).

Discussion

Meditation is deep and purposeful thoughts about eternal verities. Positive thoughts, based on eternal verities created during meditation results in positive emotions, thus positive attitude toward life events which in turn creates positive memories. Our positive thoughts, emotions, attitude and memories help in secretion of endorphins and enkephalins in body and induce relaxation of body by parasympathetic activation. Whereas negative thoughts based on irritation, dissatisfaction, greed, comparisons etc., emit negative emotions like anger, sadness, negative attitude toward life events. Negative memories affect the hypothalamus in our brain, increase output of ACTH, releasing substance which trigger secretion of ACTH which act on adrenal cortex where glucocorticoids are secreted. Glucocorticoids and catecholamines, secreted by sympathetic nervous system are the main stress hormones which result in impaired glucose tolerance and increase risk for acute cardiovascular events. Chronic stress also induces low grade inflammatory state and suppress innate and adaptive immune responses. Healthcare professionals face lots of stressors in medical environment like long hours of working, night shifts, pain and suffering of patients. Constant stress can lead to burn out syndrome, attrition, depression and aggressive behaviors. Since meditation help to consciously create positive thought patterns, it helps to induce a person's mental, physical, social and spiritual health. (7,8) Several researches (9) suggest meditation and mindfulness can support health care professionals, patients and general public during times of crisis. In Sri Lanka, a comparative study on mental well-being among regularly meditating and non-meditating health professionals (10) concluded mindfulness meditation is associated with improved mental well-being. A meta-analysis (8) on efficacy of meditation programs for psychosocial stress and well-being suggest clinical physicians must be prepared to speak to their patients about role of meditation on mental health and stress related behaviors. Below is a simple and easy meditation technique to practice:

Step 1

Preparation - As a beginner, physical preparation includes selecting a place free from noise and other distractions and don't practice meditation when you are physically tired.
Position - you can sit in any comfortable position. Keep eyes open so that you will be saved from distracting subconscious memories and falling off sleep while meditating.
Time - early morning and evening around sunset (atmosphere itself facilitate meditation practice).

Step 2

Observing your thoughts and watch your mind as second person, this will reduce speed of thinking.

Step 3

Focusing on metaphysical point of light in center of forehead. It represents "being" part of human beings.

Step 4

Turning attention to the Universal energy/God as point of light in front of you with visualization.

Step 5

Establishing a relationship with the Universal energy/God by acknowledging that this supreme energy can fulfill my metaphysical needs of unconditional love, permanent happiness and everlasting thirst for peace.

Step 6

Narrating all burden of your mind to the Universal energy /God.

Step 7

Creating positive thoughts which would help in performing future actions with purity and peace of mind.

Recommendations to implement meditation in health care system:

- Simple and easy meditation practice should be incorporated in training schedules of medical professionals and other health care workers.
- Creating meditation rooms in hospitals where health professionals and health care workers can do meditation whenever they prefer by themselves.
- Pictorial explanation of how to do simple meditation and its benefits should be portrayed in hospital premises in appropriate places like notice board, waiting places in clinics and etc.
- Regular meditation related classes should be conducted for medical professionals and other health care workers by trained meditation practitioners.
- A separate meditation room for patients and their care takers can be established in hospitals.
- Outcome of using meditation in well-being can be assessed by keeping a feedback record book outside meditation rooms where the meditators can share their experience and give comments.
- Research on outcome of meditation practicing health professionals and control group can be done and evaluate the success rate and changes.

Conclusion

Since meditation is easy, costless and secular method to enhance health, it is my conclusion that meditation should be practiced routinely by people in general and especially by healthcare professionals to cope with rising demands of life and to increase their mental resilience, acknowledging method and benefits of meditation. Further, meditation also can be used as adjuvant therapy in non-communicable and chronic and end stage disease conditions.

References

1. Kang Y. Mind-Body Approach in the Area of Preventive Medicine: Focusing on Relaxation and Meditation for Stress Management. Journal of preventive medicine and public health. 2010 Sep 1;43(5):445-50.
2. Lee SH, Hwang SM, Kang DH, Yang HJ. Brain education-based meditation for patients with hypertension and/or type 2 diabetes: A pilot randomized controlled trial. Medicine. 2019 May 1;98(19): e15574.
3. Basso JC, McHale A, Ende V, Oberlin DJ, Suzuki WA. Brief, daily meditation enhances attention, memory, mood, and emotional regulation in non-experienced meditators. Behavioural brain research. 2019 Jan 1; 356:208-20.
4. Epel E, Daubenmier J, Moskowitz JT, Folkman S, Blackburn E. Can meditation slow rate of cellular aging? Cognitive stress, mindfulness, and telomeres. Annals of the New York Academy of Sciences. 2009 Aug;1172(1):34-53.
5. Kauts A, Sharma N. Effect of yoga on academic performance in relation to stress. International journal of yoga. 2009 Jan 1;2(1):39-43.
6. Jha K, Kumar P, Kumar Y, Ganashree CP, Tripathi C, Shrikant BK. The Effectiveness of Rajyoga Meditation as an Adjuvant for Panic Anxiety Syndrome. International Journal of Yoga. 2023 May 1;16(2):116-22.
7. Sampaio CV, Lima MG, Ladeia AM. Meditation, health and scientific investigations: review of the literature. Journal of religion and health. 2017 Apr; 56:411-27.
8. Lutz A, Slagter HA, Dunne JD, Davidson RJ. Attention regulation and monitoring in meditation. Trends in cognitive sciences. 2008 Apr 1;12(4):163-9.
9. Behan C. The benefits of meditation and mindfulness practices during times of crisis such as COVID-19. Irish journal of psychological medicine. 2020 Dec;37(4):256-8.
10. Gunathunga W, Jayakody O, Bartlett L, Munugoda I, Gunathunga CK. Comparative study on the mental wellbeing among regularly meditating and non-meditating health care personnel in Sri Lanka. Journal of the College of Community Physicians of Sri Lanka. 2019;25(3):112-20.

BATTICALOA MEDICAL JOURNAL

Established 2005

Volume 18, Issue 01 July 2024

ISSN 1800- 4903

QUIZ ANSWERS

QUIZ 1

ANSWER: C

This is the classic “sine wave ECG pattern” of severe hyperkalemia. It can quickly deteriorate into ventricular fibrillation (VF). Immediate treatment is with 10ml 10% calcium gluconate administered over 10 minutes for cardioprotection. ECG monitoring during administration will demonstrate progressive narrowing of the QRS complexes and normalization of the ECG pattern. Meanwhile, definitive measures to drive the potassium into the intracellular space and/or to remove the excess potassium from the body must be undertaken. Close monitoring of the ECG rhythm is required, and calcium gluconate can be repeated if necessary.

QUIZ 2

ANSWER: A

The child is asymptomatic and the urine microscopy is not suggestive of infection. The culture report shows <105 colony-forming units (organisms) per mL, which too is not suggestive of infection. This type of urine culture growth is seen in patients after being treated with antibiotics. It indicates colonisation of the urinary tract with organisms which were resistant to the antibiotic given. The best option here would be to leave it alone, for the body’s natural barriers to control these organisms. Treating with antibiotics would only promote more resistant organisms to flourish, which may cause issues in case the child develops further attacks of UTI.

QUIZ 3

ANSWER: E

William syndrome is a genetic disorder due to microdeletion of in the short arm of chromosome 7 (7q11.23). Features of William syndrome include typical facies (puffy eyes, broad forehead, long philtrum, wide mouth, full lips) and short stature. They are known to be hypersensitive to noises (hyperacusis). They are usually intellectually challenged (mild mental retardation) and have a friendly and outgoing personality. Supra-aortic stenosis and hypercalcaemia are other recognised features.

Dental malformations like hypoplasia of teeth, high prevalence of tooth agenesis, severe dental decay, oligodontia, pulp stones, microdontia, abnormally small roots, tapered or screwdriver-shaped incisors, bud-shaped maxillary primary second molars, and mandibular permanent molars have been observed in individuals with William syndrome

Poornima, P., Patil, P. S., Subbareddy, V. V., & Arora, G. (2012). Dentofacial characteristics in William's syndrome. Contemporary clinical dentistry, 3(Suppl 1), S41–S44. https://doi.org/10.4103/0976-237X.95103

(Picture:https://archive.jpda.com.pk/volume-19-issue-1/facial-and-dental-manifestations-of-williams-syndrome-case-report/)

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