

MASH JOURNAL VOLUME 5 ISSUE 1
OCTOBER 2020



MANIPAL ALUMNI SCIENCE AND HEALTH JOURNAL

MANIPAL ALUMNI ASSOCIATION MALAYSIA

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EDITORIAL NOTE

Dear Authors / Researchers / Readers,

Welcome to the 5th Edition of Manipal Alumni Science & Health (MASH) Journal.

Manipal Alumni Association of Malaysia (MAAM) is publishing the 5th Edition of 'Manipal Alumni Science & Health (MASH) Journal since its launch in 2014 by the then Minister of Health, Malaysia, Y.B. Datuk Seri Dr S Subramaniam.

MASH Journal focuses and publishes case reports, original research work, review articles etc. from different disciplines of medicine, health and science. This is published as an open access journal to provide access to wider audience with common interest on science and health issues and challenges. The main goal of MASH Journal is to publish high quality peer-reviewed scientific papers in the field of science and health and serve as a forum for diverse viewpoints on major scientific, health issues and policies. I would like to encourage authors to present their thoughts without any hesitation in order to push for new and innovative ideas in solving current various challenges. This way we can ensure that this journal is accepted and respected as a reputable academic journal with impact to influence the practice of science and medicine in Malaysia and the region.

The motto behind the journal is to help students, researchers and scientist worldwide to benefit from the high quality peer reviewed articles and to their high performing works in the entire arena of science and health. I do hope that more Researchers, Clinicians, Students and Scientists will consider sending their articles to the Manipal Alumni Science & Health Journal. We hope you enjoy this edition and best wishes to everyone from all of us in the Editorial team.

I would like to thank all authors, reviewers and editors for their continuous support to this Journal.

Regards

Associate Professor Dr Mohammad Nazmul Hasan Maziz
Chief Editor



CASE REPORT**Synovial Tuberculosis Masquerading As Monoarticular Inflammatory Arthritis**Kishan Rao Subramaniam ¹, Nor Hamizan Noor Hadi ¹*Corresponding Author Email: drkishanrao@yahoo.com.my***SUMMARY**

We report a case of a young girl presented with history of swelling over right knee for a period of 3 years which clinical, laboratory investigations and initial radiographic features were suggestive of auto-immune arthritis. Subsequently an open biopsy was done, although cultures were negative for MTB or NTM, histopathological examination (HPE) reported a chronic granulomatous inflammation which was highly suggestive of Tuberculosis (TB). She received anti-tuberculosis treatment for a total of one year and noted marked improvement which was evidently shown clinically and radiographically. Musculoskeletal TB is known to be a great mimicker of other pathology. A high index of suspicion is needed especially in a TB-prone area.

CASE REPORT

This is a case of a 16-year-old girl who presented to us on January 2018 with swelling over right knee for a period of 3 years associated with occasional pain but worsening a few weeks prior to our evaluation. She was able to perform daily activities prior to her referral from the district hospital. She had neither presentation of fever nor any constitutional symptoms. Noted swelling was spontaneous and there were no history of trauma to the knee. Further history taking, patient was noted to have morning joint stiffness.

On physical examination, she was healthy looking and not ill. She was afebrile. There was diffuse swelling of the right knee, non-erythematous and non-tender with no obvious skin changes. Patient was able to fully flexed and extend the knee without significant pain. Systemic examination was unremarkable. There were no significant lung findings. There was neither lymphadenopathy nor organomegaly.

Blood investigation showed no increment in leukocyte count, erythrocyte sedimentation rate (ESR) of 62mm/hr. Patient was positive for rheumatoid factor (RF) and antinuclear

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antibody (ANA) with titer 1:160 but anti-CCP was negative. Plain radiograph of the right knee revealed no bony or soft tissue abnormality.

Patient was referred to a rheumatologist for their expert opinion with the working diagnosis of rheumatoid arthritis as earlier clinical and laboratory findings were suggestive of it. After the patient's review with the rheumatologist, she was referred back noting that it was unlikely to be rheumatoid arthritis.

A magnetic resonance imaging (MRI) was arranged for this patient and it showed marked synovial thickening, juxta-articular osseous and cartilaginous erosions with subchondral bone oedema at lateral femoral condyle (Figure 1). The MRI concluded that it is suggestive of synovitis of right knee joint. Differentials are pigmented villonodular synovitis (PVNS) or inflammatory arthritis.

Subsequently she was scheduled for an open biopsy. An incision was made at suprapatellar pouch area and noted synovium hypertrophy which was fibrous in consistency and rice bodies. Synovial fluid was yellowish straw colored. No pus or blood noted. Synovial tissue was sent for histopathological examination and polymerase chain reaction (PCR) for DNA detection.

The pathologist has reported that PCR was negative for both MTB and NTM but histopathological examination reported a chronic granulomatous inflammation which was highly suggestive of Tuberculosis. Antituberculosis treatment was given for a total of 1 year and there was marked improvement in knee swelling and pain. A MRI was performed again post treatment and it showed a resolving synovial thickening and joint effusion which was suggestive of good response to treatment (Figure 2).

DISCUSSION

Tuberculosis (TB) is an ancient disease. Mummified remains of ancient Egyptians show evidence of tubercular disease, and the earliest documented case of tuberculosis spondylitis was written in Sanskrit dating back to 1500 BC (Lidder et al., 2009). It is no longer confined to undeveloped or developing nations. An increased incidence of patients with TB has been observed even in developed countries due to pandemic human immunodeficiency virus infection, immigration from endemic areas, alcoholism, chronic kidney disorders, immuno-suppressive therapy, drug addiction, intraarticular steroid injection and systemic illness (Uboldi, Limonta, Ferrua, Manunta, & Pellegrini, n.d.). No age is exempted.

Mycobacterium tuberculosis is a nonmotile, strictly aerobic organism consisting of pleomorphic rods lacking an outer cell membrane. It is a slow-growing organism and humans are its only reservoir in nature. The particular virulence of the organism is, in part,

a result of its ability to enter cells, to grow intracellularly, and to interfere with the effects of toxic oxygen intermediates. Transmission is via droplet spread.

Extra-pulmonary tuberculosis (TB) is reported in less than one in five cases with the knee affected in 8% after the spine and hip (Mah & Bux, 2006). Generally, TB knee is usually monoarticular, and is the 3rd most common site (Al-sayyad & Abumunaser, 2011). The large joints such as the hip and knee are most commonly involved. Diagnosis of tuberculosis arthritis is not an easy feat and often overlooked especially during early presentation of the disease.

TB arthritis presents usually as chronic pain, swelling, local tenderness, warmth and progressive loss of function. Cold abscesses, sinuses and constitutional symptoms are common features. Radiographs demonstrate changes only after three to four weeks of infection, and initially soft tissue swelling may be the predominant feature. Later, a classic triad of radiological findings, known as the “Phemister triad” are seen, which include juxta-articular osteopenia, joint space narrowing, and erosions (Gad, Ahmed, Nassar, & Ginawi, 2011). Laboratory investigations may yield the classical, although non-specific findings of raised ESR, a leukocytosis, and high C-reactive protein. Histological patterns in tissue specimens will show a central necrotic area surrounded by histiocytes and occasional giant cells with nuclei positioned at the margin of the cell(Sh et al., 2011).

Options for treatment once the diagnosis is confirmed must involve antituberculous chemotherapy, but surgery may be indicated to improve symptoms and quality of life in patients affected by joint infection. Treatment for TB in the first instance revolves around four reserved drugs: isoniazid, rifampicin, pyrazinimide, and ethambutol. Second-line treatments also are available to combat the increasingly common variant of multi-drug resistant TB (MDR-TB). Unlike for pulmonary TB, the treatment for bone and joint disease is a lengthier process, often requiring twelve to eighteen months of chemotherapy(Lidder et al., 2009). Surgical management options include debridement, synovectomy, arthrodesis, and amputation, and success has been shown with primary joint arthroplasty.

However, our case differs from those reported as it did not have a typical presentation of TB knee and our patient was very well with no constitutional symptoms. Initial workout pointed more in the direction of an auto-immune arthritis. Radiographical findings were unremarkable even though the symptom had progressed for 3 years. Differential diagnosis that we considered was TB due to its high prevalence in Sabah. Besides imaging, a synovial biopsy is essential to identify the causative agent. Hussain Gad ElKarim Ahmed et al describes in his paper that histopathology remains one of the most important methods for diagnosing tuberculosis, and in a high TB prevalent area histopathology is the reliable and a gold standard (as otherwise is the culture). However, it cannot differentiate changes caused by *Mycobacterium tuberculosis*, non tuberculous mycobacterium or other granulomatous diseases.

Musculoskeletal TB is known to be a great mimicker of other pathology. A high index of suspicion is needed especially in a TB-prone area.

FIGURES:

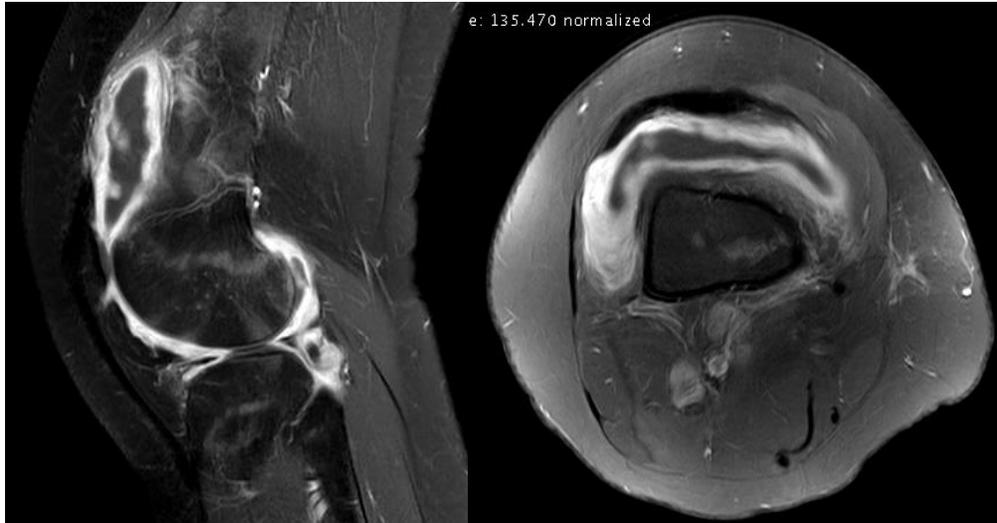


FIGURE 1: A T2 weighted saggital and axial view MRI of the left knee

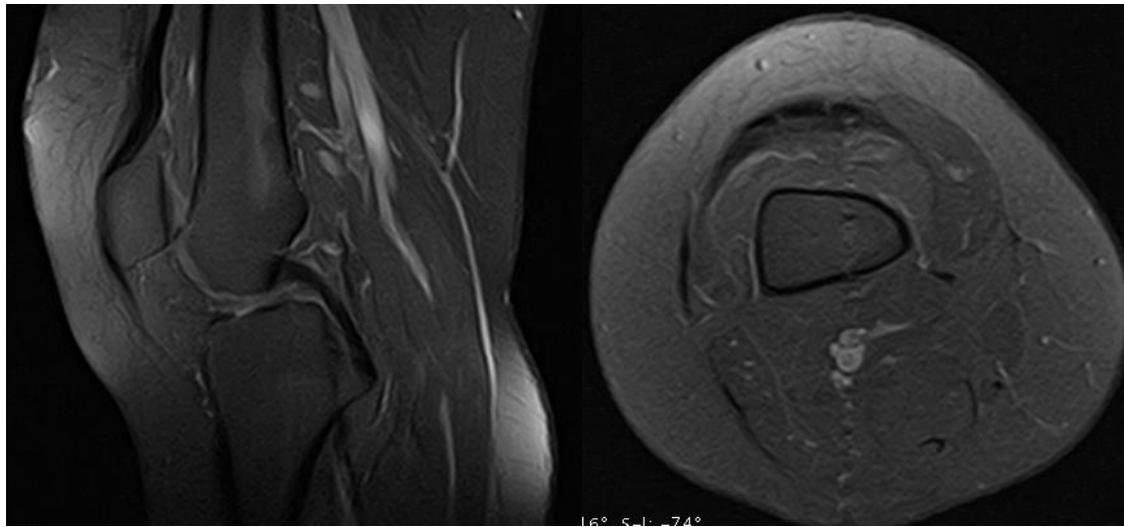


FIGURE 2: A T2 weighted saggital and axial view MRI of the left knee post anti-tuberculosis treatment

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ORIGINAL ARTICLE

A Survey On Prevalence Of Orthorexia Nervosa And Its Risk Factors Among The Undergraduate Medical Students In Private Medical College, Malaysia.

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Key Words: Orthorexia nervosa, ON, medical students, anxiety level, diet, ethnicity, age, gender, body mass index (BMI)

ABSTRACT

INTRODUCTION:

Orthorexia nervosa (ON) is a new eating behaviour disorder which is characterized by pathological obsession of biological pure food, free from artificial substances such as pesticides and herbicides. [1] The prevalence of ON is higher among the health professions and also medical students.

OBJECTIVE:

To find the prevalence of ON (dependent variable) and its risk factors (independent variable) such as age, anxiety level, gender, BMI, ethnicity, vegetarian or non-vegetarian among the undergraduate medical students in private medical college, Malaysia.

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METHODS:

This cross-sectional study was carried out from June to July 2019 among 202 medical students in Melaka Manipal Medical College, Muar, Johor, Malaysia. The research is carried out by distributing a questionnaire that consists of 3 sections, which are social-demographic details, Beck Anxiety Inventory (BAI) questionnaires and validated ORTO-15 questionnaires. Chi-Square test and multiple logistic regression were used to analyse the data and $P < 0.05$ was accepted as statistically significant.

RESULTS:

Out of 202 students participated in the study, 66.83% of the students are suffering ON. However, there is no significant association between age (p-value 0.073), gender (p-value 0.143), diet (p-value 0.538), ethnicity (p-value for malay, indian and others are 0.991, 0.314 and 0.057 respectively), BMI (p-value for underweight < 18.5 , overweight > 25.0 are 0.441 and 0.526 respectively) and anxiety level (p-value for mild, moderate and severe are 0.621, 0.150 and 0.699 respectively) and ON.

CONCLUSION:

Most of the medical student in the college are suffering from ON. There are no significant association between ON and the risk factors such as age, gender, ethnicity, diet, BMI and anxiety level.

INTRODUCTION

Orthorexia is a new eating behavior disorder which is characterized by pathological obsession of biological pure food, free from artificial substances such as pesticides and herbicides [1]. It is described with the term “obsession with health and proper nutrition” [2]. The concept is defined by Dr. Steven Bratman in 1996 [3]. It is able to cause substantial dietetic limitations which leads to an individual having obsessive ideas about foods, affective dissatisfactions and intense social isolation [1, 2]. ON is a harmful behavior and a disorder connecting behavior and personality for paying too much attention on consuming healthy food, spending excessive amount of time with this preoccupation to the extent of causing dysfunctions in everyday life [1]. A study on orthorexia is done among 318 resident medical doctors in Ankara, Turkey shows that the prevalence of orthorexia is found to be 45.5% [4].

According to Dr. Steve Bratman, both orthorexia and anorexia are parallel to each other [3]. Based on symptom wise, both orthorexia and anorexia have tendencies towards perfectionism, high comorbid anxiety and need for control [5]. Individuals with orthorexia and individuals with anorexia will follow a restricted diet in order to achieve self-discipline and perceive deviation from strict diet as a failure of self-control [5]. They involve controlling behavior where orthorexic individuals feel obligated to reach the greatest height of dietary perfection, feeling totally clean, pure and transparent; people who are anorexic seek for continuous reduction in their body weight [3, 6]. Even though both anorexia and orthorexia share similarities among each other, however, the ultimate goal between both of them are different. For orthorexic individuals, their ultimate goal is to improve or manage their health with diet whereas for anorexic individuals, they are focused on their physical body image with the fear of obesity. These individuals relate this type of diet to better quality of life in terms of life satisfaction, happiness, self-esteem, optimism, and lower tendency to be depressed.

Fear of illness is the most obvious anxiety suffered by people who are orthorexic [3]. In most of the general population, we believe that prevention of illness is better than curing and one of the easiest way to prevent illness is by eating healthily. According to the WHO (World Health Organisation), a healthy diet helps to protect all forms of malnutrition and non-communicable diseases such as diabetes, heart disease, stroke and cancer [7]. Proper control of the quality of diet is a good habit, however, if overdoing it, may lead to major health concern.

There is no main diagnostic criteria for ON and different researchers have different approach to diagnosis [8]. However, it is found that most early diagnosis of ON is done by assessing “Bratman Orthorexia Self-test” (BOT) invented by Dr. Steve Bratman [3]. It consists of a 10-item orthorexia questionnaire and it is a useful screening tool in the early diagnosis of ON. The BOT is modified to produce ORTO-15 by Donini et al. [9]. In our study, we are using ORTO-15 scales to evaluate the tendencies of ON among the medical students in private medical college, Malaysia who are in their semester 6, 7, 8, 9 and 10 and their

behavior towards it [10]. ORTO-15 is used to determine the prevalence of highly sensitive behavior regarding health and proper nutrition. Each of the 15-item corresponds to a unique score, in which the total score of less than 40 is diagnosed as orthorexic whereas the total score of more than 40 is free of orthorexia [4].

In Malaysia, there is a study by Universiti Teknologi MARA, Selangor on association between ON and quality of life. The study shows there is a prevalence of 67.4% of the university undergraduate students experiencing ON [11]. However, to our knowledge, there has been no study conducted on prevalence of ON among medical students associated with its risk factors. Therefore, the research objective of our study is to find the prevalence of ON (dependent variable) and its risk factors (independent variable) such as age, anxiety level, gender, BMI, ethnicity, vegetarian or non-vegetarian among the undergraduate medical students in private medical college, Malaysia.

METHODOLOGY

Study design:

A cross sectional analytical study about the relationship between ON with age, gender, ethnicity, BMI, diet (vegetarian/not vegetarian) and anxiety, which will be conducted amongst semester 6, 7, 8, 9, 10 medical students in a private medical college in Malaysia.

Study time, setting, and population:

The study will be conducted from June to July 2019 in a Melaka Manipal Medical College, Muar, Johor, Malaysia. Our college provides three programmes which is; Bachelor of Medicine and Surgery (MBBS), Bachelor of Dentistry (BDS) and Foundation in Science (FIS). This study includes participants of semester 6 and 7 students of MBBS at Muar Campus and semester 8 and 9 student at Melaka Campus. The total number of students enrolled in these MBBS programmes is approximately 750.

Sample size:

The sample size was calculated using the finite study population formula where a 0.07 error rate, level of significance ($\alpha=0.05$) and estimated proportion ($p=0.445$) is accepted and there would be a 95% confidence level. For this formula, we were using Statistics and Sample Size version 1.0 software. The previous study stated the prevalence of ON among medical students in Turkey is 45.5%* [4], which was used as the proportion in this formula as 0.445

$$n \geq \frac{NZ_1^2 - \frac{\alpha}{2}p(1-p)}{d^2(N-1) + Z_1^2 - \frac{\alpha}{2}p(1-p)}$$

Where;

- Population size, N = 750
- Proportion, p = 0.455
- Error, d = 0.07
- Alpha, = 0.05
- n = Sample size
- Minimum number = 155

The formula used for adjustment for non-response was as follows;

$$n_{final} = \frac{n_{calculated}}{1 - nonresponse\%}$$

$$n_{final} = \frac{155}{1 - 30\%}$$

$$n_{final} = 222$$

30% of non-response were allowed in this study. Thus, 222 questionnaires were distributed among students.

Sampling:

Sampling method used was non-probability sampling method which is a purposive sampling. Thus, purposive sampling was carried out to take sample from 222 of semester 6, 7, 8 9 and 10 students out of a total 750 MBBS students.

For semester 6 and 7 students, self-administer questionnaires were distributed to students during class hours, whereas for semester 8, 9 and 10 students, questionnaires were distributed using google link and their participation was voluntary. Students who wished to participate were asked to sign the consent form attached along with the questionnaire.

Certain exclusion criteria were applied. Failure to complete the questionnaire or no consent or the absence of students will be excluded from the study. All ethnic groups, races and nationality as well as both sexes were invited to participate. Students participating in the study are in semester 6, 7, 8, 9 and 10. We used validated questionnaires from the ORTO-15 questionnaires and Beck Anxiety Inventory (BAI) questionnaires.

Data Collection:

For this study, we prepared a questionnaire which consisted of three sections. The first section consisted of socio-demographic detail section asking about batch, age, gender, weight, height, diet (vegetarian/non vegetarian), ethnicity/nationality, followed by another 2 sections.

Section 2 contained the brief version of the Beck Anxiety Inventory (BAI) questionnaires [12]. This scale is a self-report measure of “anxiety”. It consisted of 21 questions of list of common symptoms of anxiety. Indicate how much they have been bothered by that symptom during the past month. All items were scored on a 4-point Likert scale ranging from 0 (not at all) to 4 (Severely – it bothered me a lot). The minimum score is 0 and the maximum score is 80. Higher total scores indicate more severe anxiety symptoms. The standardized cut-offs [13] are:

0-7: minimal anxiety

8-15: mild anxiety

16-25: moderate anxiety

26-63: severe anxiety

Section 3 contained the validated ORTO-15 questionnaires. The ORTO-15 Questionnaire is a tool consisting of 15 items describing the intensity of the Orthorexia behavior [11]. Each item was assessed using Likert scale- always, often, sometimes, and never. The minimum score is 1 and the maximum score is 60. Scoring grid responses were used where each question has different scoring for different responses. Score of 1 is given to the response that was more indicative ON and a score of 4 is given to those that indicates a normal eating behaviour. The score for question 2,5,8 and 9 is a positive statement where the score increasing from ‘never’ to ‘always’ response (1 to 4). The score for question 3,4,6,7,10,11,12,14 and 15 is a negative statement where the score decreasing from ‘never’ to ‘always’ response (4 to 1). Question 1 and 13 are has ‘often’ as the highest score 4, ‘sometimes’ 3, ‘always’ 2 and ‘never’ 1. Scores below 40 points in the ORTO15 test were classified as Orthorexia and eating behaviour reaches normal eating pattern as the score increases [11]. This questionnaire has been validated by prior study.

Question number	Responses			
	Always	Often	Sometimes	Never
2,5,8,9	4	3	2	1
3,4,6,7,10,11,12,14,15	1	2	3	4
1,13	2	4	3	1

Data processing and analysis:

For the data analysis, software used was Microsoft Excel 2010 and Epi info version 5.0. Frequency and percentage for qualitative data like age, gender, BMI, ethnicity and diet (vegetarian/non vegetarian). Mean, standard deviation and odds ratio were calculated for quantitative data like anxiety (measured using BAI questionnaire) and ON (measured using the ORTO-15 Questionnaire). Level of significance allowed for hypothesis testing is 0.05. Association between age, gender, BMI, ethnicity, diet, anxiety level and ON was calculated using Chi-square.

Ethics:

Ethical approval for the study was approved by the Research Ethics Committee, Faculty of Medicine Melaka Manipal Medical College (Malaysia Campus). An informed consent will be prepared and given where the participants will sign as evidence of voluntary participation upon distribution of questionnaires. The participants have the authorities to withdraw from the study. The collected data will remain confidential and anonymous and is used genuinely for research study purpose only.

RESULTS:**Table1: Association between risk factor of socio-demographic characteristics and ON**

Socio-demographic characteristic	Frequency (%)
Semesters:	
6	101(50.00%)
7	80(39.60%)
8	13(6.44%)
9	4(1.98%)
10	4 (1.98%)
Age:	
≤ 22 years	86 (42.57%)
> 22 years	116 (57.43%)
Mean (SD)	22.391(1.282)
Minimum- maximum	19-28
Ethnicity:	
Chinese	51(25.25%)
Malay	39 (19.31%)
Indian	73(36.14%)
Others	39(19.31%)
Gender:	
Female	108(53.47%)
Male	94(46.53%)
Diet:	
Non-vegetarian	189(93.6%)
Vegetarian	13(6.44%)
BMI:	
18.5-24.9 desirable weight	126(62.38%)
<18.5 underweight	24(11.88%)
>25.0 overweight	52(25.74 %)

Table 2: Anxiety and ON

Characteristic	Frequency (%)
Anxiety:	
Minimal	71(35.15%)
Mild	56(27.72%)
Moderate	33(16.34%)
Severe	42(20.79%)
Mean (SD)	15.233(13.322)
Minimum-maximum	0-59
ON:	
Present	135(66.83%)
Absent	67(33.17%)
Mean	37.822(3.778)
Minimum-maximum	27-47

Table 3: Risk factors of ON

Independent variables	Orthorexia Nervosa		OR (95%CI)	Chi-square	P value
	Present n (%)	Absent n (%)			
Age:					
≤ 22 years	72(62.07%)	44(37.93%)	1(Reference)	2.788	0.095
>22 years	63(73.26%)	23(26.74%)	1.674 (0.912-3.072)		
Ethnicity:					
Chinese	31(60.78%)	20(39.22%)	1(Reference)	0.104	0.748
Malay	25(64.10%)	14(35.90%)	1.152 (0.486-2.730)		
Indian	49(67.12%)	24(32.88%)	1.317 (0.626-2.774)		
Others	30(22.22%)	9(23.08%)	2.151 (0.846-5.468)		
Gender:					
Female	68(62.96%)	40(37.04%)	1(Reference)	1.567	0.211
Male	67(71.28%)	27(28.72%)	1.460 (0.806-2.642)		
Diet:					

Vegetarian	8(61.54%)	5(38.46%)	1(Reference)		
Non-Vegetarian	127(67.20%)	62(32.80%)	1.280 (0.4022-4.0753)	0.176	0.675
BMI:					
18.5-24.9 desirable weight	86(68.25%)	40(31.75%)	1(Reference)		
<18.5 underweight	14(58.33%)	10(41.67%)	0.651 (0.266-1.592)	0.893	0.345
>25.0 overweight	35(67.31%)	17(32.69%)	0.958 (0.480-1.910)	0.015	0.902
Anxiety:					
Minimal	48(67.61%)	23(32.39%)	1(Reference)		
Mild	38(67.86%)	18(32.14%)	1.012 (0.478-2.140)	0.001	0.976
Moderate	19(57.58%)	14(42.42%)	0.650 (0.279-1.523)	0.989	0.320
Severe	30(71.43%)	12(28.57%)	1.198 (0.520-2.758)	0.180	0.671

Table 4: Multiple Logistic Regression analysis of risk factors of ON.

Socio-demographic characteristic	OR	95% C.I.	P-value
Age:			
≤ 22 years	1(Reference)		
> 22 years	1.836	0.945-3.570	0.073
Ethnicity:			
Chinese	1(Reference)		
Malay	1.005	0.930-2.590	0.991
Indian	1.488	0.687-3.224	0.314
Others	2.483	0.973-6.337	0.057
Gender:			
Female	1(Reference)		
Male	1.587	0.855-2.944	0.143
Diet:			
Vegetarian	1(Reference)		
Non-vegetarian	1.249	0.616-2.530	0.538
BMI:			
18.5-24.9 desirable	1(Reference)		

weight	0.692	0.271-1.765	0.441
<18.5			
underweight	0.791	0.383-1.635	0.526
>25.0			
overweight			
BAI:			
Minimal	1(Reference)		
Mild	0.822	0.378-1.789	0.621
Moderate	0.513	0.207-1.272	0.150
Severe	1.183	0.506-2.766	0.699

DISCUSSION

Our study design was cross-sectional study and the objective of our study was to find the prevalence of ON and its risk factors among the undergraduate medical students in a private medical college, Malaysia. We studied the relation between semesters, age, gender, ethnicity, diet, BMI and anxiety level to the prevalence of ON among the undergraduate medical students. In our study, 66.83% of the undergraduate medical students were found to be having ON while 33.17% of the undergraduate medical students were absent from ON. The result showed that there was a high tendency of ON among undergraduate university students and it was also supported by some of the previous studies. A cross-sectional study was done among the resident medical doctors in Turkey showing that there was 45.5% of the resident medical doctors were found to be having ON [4]. Besides that, a study in Italy showed, with cut-off of 35 for ORTO-15, 34.9% of the students in University of Pisa were presumed to have ON. [6] In a study of prevalence of ON in Erzurum, Turkey, it showed that there is a 43.6% prevalence rate of ON among the medical students [14]. In Malaysia, a study done by Universiti Teknologi MARA showed that there was 67.4% of the prevalence of ON among undergraduate health students [11]. In addition, there was a study on prevalence of ON done among the university students in Spain. In that study showed that, 17% of the university students were at risk of ON which was significant among other eating disorders [15]. A study done among college students in the United State also showed that there was a prevalence rate of 71% of ON in their sample [16]. In Australia, a study done by Sydney University showed that the prevalence rate of ON among the Australian adults was 21% when the cut-off score for ORTO-15 is 35 whereas the prevalence rate of ON was 66% when using the cut-off of 40 for ORTO-15 [17].

There were many risk factors of ON being studied. According to a study done among the resident medical doctors in Ankara, Turkey, female are more careful on food selection compared to male [4]. In Italy, a study was done among the students in University of Pisa showed that female (37.8%) was having higher tendency to ON compared to male (30.7%) and vegetarian (56.3%) was higher than those who practiced standard diet (32.2%) which the results were significant. However, in that study, there was no significant result found in ORTO-15 total score in spite of the prevalence of ON among those who had low BMI (42.8%) was higher compared to those who had normal or high BMI (34.2%) [6]. Besides that, a study done among the universities of Poland found that 68.55% of the female students met the criteria for high levels of ON compared to male students which was 43.18%. In the study, they found that, women with ON were less likely to regularly incorporate exercise activities into their lifestyles, concentrate on dieting, eating restraints and weight vigilance, pay attention to their appearance and lead a physically healthy lifestyle [18]. In the study among the medical students in Erzurum, Turkey, the prevalence of ON among the male students was higher compared to the female students. They found a negative correlation between BMI and orthorexia scores because being overweight and obese may expose the individual to humiliation and force him or her to diet and consume healthy foods [14]. In addition, a study of association between ON and anxiety among the medical students in Lebanese universities showed that an increase in the anxiety total

score was significantly associated with higher ORTO-15 scores [10]. In a study done among the students in Castilla-La Mancha University, the location parameters of age and BMI were found to be no significant correlation with ON. However, in this study, it showed that there was a significant differences for the mean score on the ORTO-11-ES scale in the female population [15]. Unfortunately, in our study, we do not find any correlation between the risk factors such as anxiety level, age, gender, diet, ethnicity, BMI and ON.

The response rate in this study was 91.0% in which 89.6% were from semesters 6 and 7. Because of clinical posting in different hospitals and university examination during our data collection, we could not recruit many participants from semesters 8,9 and 10. Besides that, this study is conducted at one medical school in Malaysia. Therefore, the results cannot be generalized to other institutions or at different time. Due to the limitation of cross-sectional study, a temporal relationship between ON and its risk could not be established. The study on ON was done using questionnaire and self-administered method, the participants might have given a desirable answer to the researchers.

Future research on ON should be carried out at larger population of different medical institutions. This can be achieved by conducting the study in more than one medical schools. The study also should include more variables associated with ON. This is to rule out confounding factors which might play an important role in the study. Since our study has shown 66.83% of the students are suffering from ON, we believe that we should increase the study population awareness regarding ON by more publications made available to the general public, statistics of health indicators up to date and campaigns. Healthy and balanced diet should be advised to further prevent the unhealthy eating habit of ON. Daily food intake according to the food pyramid, regular exercise and routine health checkup should be done. Future study should also include more associated risk factors of ON such as health professionals, level of education, broader range of age group, role of sports and exercise, alcohol and tobacco use, and psychiatric condition like obsessive-compulsive disorder (OCD), perfectionism, self-esteem and self-control and other eating conditions such as bulimia nervosa and anorexia nervosa.

CONCLUSION

In conclusion, our study shows that most of the medical student in our college are having ON. There was no significant association between age, gender, ethnicity, diet, anxiety level, BMI and ON. Awareness of ON should be created in the general population by social media and posters. To prevent ON, a healthy and balanced diet is encouraged. This can be done by regular talks and campaigns on healthy eating, conducting routine health screening and health-promoting programmes such as marathons.

ACKNOWLEDGEMENT

Thank you to the Research Ethics Committee, Faculty of Medicine, Melaka Manipal Medical College, Malaysia and our Dean, Prof. Dr. Adinegara Lufti Abas for approving our study. Moreover, we extend our gratitude towards Prof. Dr. Htoo Htoo Kyaw Soe and Associate Prof. Dr. Sujata Khobragade for their continuous guidance and support throughout our study. We also wish to thank the students who took part in this study and generously granted us their time in the participation of our study.

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ORIGINAL ARTICLE

Are Undergraduate Medical Students Aware of Patient's Rights?

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Key Words: Patient charter of rights, Awareness, Knowledge, Medical students

ABSTRACT

INTRODUCTION:

Patient's rights was established around the world as a way to uphold the safety and quality of treatment offered by the healthcare system. Due to the advancements in technology and the rising costs of treatment, the community are more aware of their rights as patients and medical staffs ought to have the same level of awareness to avoid any future medicolegal issues.

METHODS:

To assess the knowledge that undergraduate medical students have on patients' rights, a 25 component questionnaire was administered and the students were asked to respond to the questionnaire on a three-point Likert scale- Agree, Disagree and Don't know; depending on the personal extent to which they agreed on the concerned patient right. Each correct answer was given a score of 1 and 0 for every incorrect response including the option, 'Don't Know'. The score was converted into percentage. If the knowledge percentage was ≥ 75 , then the level of knowledge was categorized as adequate, and inadequate if it was < 75 .

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RESULTS:

Our study showed that students who were aware of patient rights' were significantly more likely to have adequate knowledge, when compared to the students who were not aware of patient rights' (95% CI for OR 1.09 to 3.39; P-value 0.024).

CONCLUSION:

More initiative to integrate the basis of patient rights' into the curriculum should be done as a step into the betterment of the knowledge on patient rights' among medical staffs. Since our study only includes medical students in one private college, we would like to recommend future researchers to include general physicians, nurses and patients in their study so as to improve the standards of the health care profession.

INTRODUCTION

World Health Organization's Constitution recognizes health as a fundamental human right; it also claims that the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, and political belief, economic or social condition. [1].] In 1948, the Universal Declaration of Human Rights recognizes "the inherent dignity" (1: Art. 1) and the "equal and unalienable rights of all members of the human family" (Preamble). [2]. It is based on these pre-existing rights that contributed to the establishment of patients' rights. Due to the rising cost of healthcare, increased patient awareness and medico-legal issues, there has been issues revolving around the care that is being provided by doctors. Doctors are now more accountable to the public than ever before. Do doctors who claim to care for patients really have the best interest of their patients' welfare? [3]. Patients have higher expectations of the attending medical personnel and they desire for the best. They also want to be actively involved in the decision-making, proposed procedures or treatments and their various alternatives [4]. There has been much judicial activity on medical negligence for doctors on the standard of medical care in many countries like England, Australia, the USA, Singapore and Malaysia [5]. In order to preserve the safety and quality of the health care system, the medical team including doctors, nurse's even medical students play a crucial role in helping patients to protect their rights. As to our knowledge, there has been no studies conducted on the awareness of students on patient's rights in Malaysia; the only study which was done in Malaysia was on patient's awareness of their rights [4]. Our objective is to assess student's awareness of the existence of the Patient's Charter, sensitize the students about the importance of the rights of a patient in clinical practice and assess the extent of their knowledge on it.

METHODOLOGY

Study design, study time, study setting, study population

A cross sectional study was conducted from June 2019 to July 2019 in our college, which is a private medical college centred in Muar, Malaysia. Our college has two campuses; one based in Muar, Johor and the other is based in Malacca. The Muar campus offers Bachelor of Medicine and Bachelor of Surgery (MBBS) Semester 6 and 7, while the Malacca campus offers Bachelor of Dental Surgery (BDS), Foundation in Science (FIS) and MBBS Semester 8, 9 and 10. This study aims to determine the knowledge of undergraduate medical students towards patient rights, and therefore a study population of 750 medical students from MMMC was selected.

Sampling size and sampling method

Purposive sampling was used to enrol students for this study, which is a non-probability sampling method. The inclusion criteria were that the student must be a medical student, has voluntarily agreed to participate in this study and completed the given questionnaire including the consent form. The exclusion criteria included incomplete questionnaires as well as the students who were not present in class at the time of distribution of the questionnaires and since participation was voluntary, those students who did not give consent were excluded.

The sample size(n) was calculated using 'Statistics and Sample size' app version 1.0.

To estimate a proportion in finite population, the following equation was used:

$$n \geq \frac{NZ_{1-\alpha/2}^2 p(1-p)}{d^2(N-1) + Z_{1-\alpha/2}^2 p(1-p)}$$

Where;

Significance level (α) = 0.05

Estimated proportion (p)= 0.817

Estimation error (d) = 0.05

Population size (N) = 750

Based on a previous research [6], 81.7% of the participants had adequate knowledge towards patient rights, from which an estimated proportion of 0.817 was taken. Estimation error was taken as 0.05 and the population size (N), which is the approximate total of medical students in the selected private college, Malaysia, was taken as 750. After

calculation, the result was a minimum sample size of 177. Taking non-response percentage of 30% into consideration n_{final} was calculated as follows:

$$n_{\text{final}} = \frac{n_{\text{calculated}}}{1 - \text{non response \%}}$$

$$= \frac{177}{1 - 0.3}$$

253 was considered the final sample size and 253 questionnaires were distributed.

Data collection

The questionnaire consisted of two parts. The first part contained the demographic data (age, gender, and ethnicity), awareness of patient rights and source of knowledge of patient rights. The second part included 25 questions regarding medical students' knowledge towards patient rights. The questionnaire was taken from a previous study [7] and adjusted according to the guidelines of Malaysian Hospital Accreditation Standards. The reliability of the tool was tested using Cronbach's alpha to calculate the overall internal consistency for the entire 25-item scale of the knowledge of medical students on the Patient's Bill of Rights (PBR), and the coefficient was 0.995. The questionnaires were then distributed among students during their regular classes and questionnaires were forwarded as Google forms to those students in semester 8 and 9, studying in Malacca campus. The students were asked to respond to the questionnaire on a three-point Likert scale- Agree, Disagree and Don't know; depending on the personal extent to which they agreed on the concerned patient right.

Data processing and data analysis

Data was then fed into Microsoft Excel and compiled. Epi info V7.0 was used to statistically analyse the data. For quantitative data (knowledge), the range, mean along with standard deviation and median along with interquartile range was calculated. Bivariate analyses were carried out to calculate Odds Ratio (OR) for association between social demography variables and the level of knowledge (adequate/inadequate). For qualitative data (gender and ethnicity) frequency and percentage was calculated. For the questions related to knowledge, each correct answer was given a score of 1 and 0 for every incorrect response including the option, 'Don't Know'. The score was converted into percentage. If the knowledge percentage was ≥ 75 , then the level of knowledge was categorized as adequate, and inadequate if it was < 75 . The minimum possible score was 0 (0%) and the maximum possible score was considered as 25 (100%). For qualitative data (gender, ethnicity and semester), frequency and percentage was calculated.

Chi-squared test was used to determine the relationship between awareness and the knowledge of students on patient's rights.

RESULTS:

A total of 255 questionnaires consisting of 25 questions were distributed to the medical students in the selected private college and a total of 197 responses were received by our side, giving a response rate of 77.25%.

Table 1 shows the participant was aware of the existence of Patient's Rights to which 106 (53.81%) responded yes and the remaining 91 (46.19%) were not aware of it.

Table 2 highlights the main part of our questionnaire which was the 25 questions on their knowledge on Patient Right's. The highest correct response rate was 95.94% for 'Consent must be written in a language understandable by the patient' and the lowest response rate was 19.29% for the following statement, 'Doctors are entitled to withhold any procedures related to a patient condition if patient refuses their choice of treatment. Four other items were below the 50% mark which were , 'A doctor can disclose a patient's information to judicial department only with his/her permission'(37.06%), 'A consent form is required for both routine and emergent lifesaving procedures'(34.01%) 'The patient's medical record can be accessed by health-care team members, researchers, or other hospital staff' (31.47%), and 'Patient should be provided by one consent for different interventions such as surgery, anaesthesia, and radiology (21.32%)'.

Table 3 shows that among the 197 respondents, 48.22% showed that they had adequate knowledge on Patient's Rights and the remaining 51.78% showed inadequate knowledge.

Table 4 shows the association between social demographic profile of students and their knowledge on Charter of Patient Rights. It is seen that the students who were aware of Patient's Rights were 1.92 significantly times more likely to have more knowledge on the rights than those who were not aware of Patient's rights (95% CI for OR 1.09 to 3.39; P-value 0.024). Logistic regression shows that participants who said they were aware of the existence of patient's rights were significantly 1.91 times more likely to have adequate knowledge on these rights compared to those who were not aware of it (95% CI for OR 1.07 to 3.41; P-value: 0.028).

TABLES

Table 1: Socio-demographic of the medical students that participated in the study and their awareness (n=197)

Variable		Frequency (n)	Percentage (%)
Age	Mean (SD)	22.36 (1.28)	
Gender	Female	114.00	57.87%
	Male	83.00	42.13%
Ethnicity	Chinese	49.00	24.87%
	Indian	66.00	33.50%
	Malay	37.00	18.78%
	Others	45.00	22.88%
Semester	6	121.00	61.42%
	7	67.00	34.01%
	8	7.00	3.55%
	9	2	1.02%
Religion	Buddhist	52	21.40%
	Christian	26	13.20%
	Hindu	60	30.46%
	Muslim	45	22.84%
	Other	14	7.11%

Table 2: Responses to each item of the charter of patient rights

No.	Statement on Patient Rights in Malaysia	Frequency of Correct Answer	Percentage (%)
1.	Patients are not required to be treated with courtesy and respect during times of emergency.	155	78.68
2.	Patients should know the identity and professional status of the healthcare providers responsible for his/her treatment.	171	86.80
3.	A patient is entitled to the name of the physician.	177	89.85
4.	Patients are entitled to a method of contacting her/his treating physician.	170	86.29
5.	Patient's culture and beliefs should be respected even if it was against medical advice.	149	75.63
6.	A patient may have the possibility of obtaining a second opinion within the same hospital or another.	176	89.34
7.	When examining a patient, a third party (male or female) should be present	174	88.32
8.	Treatment options should be discussed within the health team; patients are only entitled to the treatment plan	116	58.88
9.	The patient's medical record can be accessed by health-	62	31.47

	care team members, researchers, or other hospital staff.		
10.	A doctor can disclose adult patient information to anyone upon his/her permission.	113	57.36
11.	A doctor can disclose patients' information to a research team without his/her permission.	158	80.20
12.	A doctor can disclose an adult patient's information to a specific family member (father-husband-wife) without his/her permission.	135	68.53
13.	A doctor can disclose a patient's information to judicial department only with his/her permission.	73	37.06
14.	A doctor can disclose a patient's information (to local and/or national health authorities) in case of communicable diseases.	159	80.71
15.	A consent form is required for both routine and emergent lifesaving procedures.	67	34.01
16.	Consent must be written in a language understandable by the patient.	189	95.94
17.	Patient should be provided by one consent for different interventions such as surgery, anaesthesia, and radiology.	42	21.32
18.	Treatment procedure should be done even if refused by the patient.	160	81.22
19.	Doctors are entitled to withhold any procedures related	38	19.29

	to a patient condition if patient refuses their choice of treatment.		
20	Patients in governmental hospitals do not have the right to refuse participation in any research done by the hospital.	160	81.22
21.	Patient does not have the right to quit after agreeing to participate in a research.	159	80.71
22.	Patient has the right to in advance about her/his treatment cost and insurance coverage.	184	93.40
23.	Patient does not need to know about treatment cost if she/he was covered by insurance.	168	85.28
24.	Patients have the right to choose his own statements to be written in the medical report.	111	56.35
25.	The medical team should report any violence against children to the concerned authority.	179	90.86

Table 3: Knowledge of medical students about Charter of Patient Rights.

Level Of Knowledge	Frequency	Percent (%)
Adequate	95	48.22%
Inadequate	102	51.78%

Table 4: Chi Square analysis of the association between awareness and their knowledge on Charter of Patient Rights' along with the logistic regression

Independent Variables	Knowledge		ODDS RATIO (95% CI)	CHI-SQUARE	P-VALUE	Logistic regression					
	Adequate (%)	Inadequate (%)				Odds Ratio	95% CI for OR	Coefficient	S. E	Z-Statistic	P-Value
	AWARENESS										
Yes	59 (29.95%)	47 (23.86%)	1.92(1.09-3.39)	5.08	0.024	1.91	1.07 - 3.41	0.65	0.30	2.20	0.028
No	36 (18.27%)	55 (27.92%)									

DISCUSSION

People nowadays are well informed of their rights and any negligence or disrespect to their rights by medical staffs could result in medical legal issues which can be taxing to for both parties. The aim of this cross sectional study was to assess student's awareness of the existence of the Patient's Charter, sensitize the students about the importance of the rights of a patient in clinical practice and assess the extent of their knowledge on it.

53.81% of medical students stated that they were aware of the existence of patient charter of right.

Interestingly, a study in Iran by Zahra Ghodsi showed the same result with our study where 53% of medical students had an average awareness about patient's bill of rights. [8].

Compared to the study carried out in Saudi Arabia, Al-Amoudi SM et al., observed that medical students at their centre were not well aware of women's health rights, reproductive health rights and rights of potentially vulnerable patients.

This study also showed that 48.22% of medical students had adequate knowledge on patient charter of rights.

A study byfrom Ranjbar et al. recorded that 42.4% of medical students had good knowledge in this context. Only 35.9% of the trainees (medical interns) ranked a good level with sufficient knowledge. [9].

Our study has shown that there is a significant association between awareness of patient rights' and knowledge towards patient rights'. Those who were aware of patient rights' were significantly more likely to have adequate knowledge, when compared to the students who were not aware of patient rights'. The same results were also seen in a previous study conducted in Saudi Arabia [10].

Similarly, a study conducted in Lithuania in 2002 [11], shows the same association, where the physicians who were aware of patient rights', practised with deference towards patients.

Unfortunately we too faced some limitations. Firstly, this study was conducted among medical students picked from only one private medical college at one point of time, so the results are not reflective of the current clinical practice in Malaysia, reducing the generalizability factor in our study. All the respondents are currently in their clinical phase which is Year 4 and 5. In our study 95.43% of the respondents are in Year 4 and the remaining respondents were from Year 5. This is due to the difficulty we faced in approaching Year 5 students as they are located in a different campus. Secondly, the respondents in our study might have given whatever they thought would be an acceptable response to the researcher, rather than revealing the whole truth or pick the answers that resonates with them the most.

CONCLUSION

Our study shows that students who had the awareness of the charter of patient rights were found to have adequate knowledge regarding these rights as they have read or heard about the gist of these rights mainly through mass media. Patients' rights is still an issue that needs to be addressed among medical staff. Thus, it is obligatory to sensitize the newly-inducted medical students by instilling some information on these desirable topics during their foundation orientation course in the form of lectures/role-play; later on reinforcement of these messages can be done during community postings. This ensures patients to receive care based on humanistic and ethical rights.

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ORIGINAL ARTICLE

Analysis Of Responses To Questionnaire Administered During 'Advanced Care Planning And End Of Life Care Workshop' At Hospital Raja Permaisuri Bainun, Ipoh.

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Key Words: *Advanced Care Planning, End Of Life Care, Knowledge, Attitude and Practice*

ABSTRACT

A questionnaire was administered during the 'Advanced Care Planning And End Of Life Care Workshop' conducted in the Auditorium of the Ambulatory Care Centre of Hospital Raja Permaisuri Bainun on 20th January 2017 to all participants comprising Specialists, Medical Officers and House Officers to assess their knowledge, attitude and practice of Advance Care Planning during patient consultations. This report is an analysis of the responses to the questionnaire administered. The objectives of this study were in general to assess and analyze the knowledge, attitude and practice of medical practitioners on Advance Care Planning in clinical practice in Hospital Raja Permaisuri Bainun, Ipoh and specifically to determine analytically the level of awareness on Palliative Care and knowledge, attitude and practice of medical practitioners on Advance Care Planning in clinical practice in Hospital Raja Permaisuri Bainun, Ipoh. The questionnaire designed was administered to all medical practitioners who attended the workshop and was analyzed on SPSS without the personal identifiers. The 70 respondents who filled out the questionnaires comprised of doctors subdivided into 3 categories namely House Officers (38.8%) Medical Officers (36.3%) and Specialists (12.5%). Amongst the respondents, 34.3% of the respondents were males and the remaining 65.7%) were females. The minimum age of the respondents was 24 and the maximum age was 52. The mean age was 30.03 years with a standard deviation of 5.228 years. From the analysis by age, majority of the respondents were aged between 26-30 years (48.6%) followed by 31-35 years (34.3%).

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Only 1.4% of the respondents were aged above 50 years and 4.3% of the respondents were aged 25 years and below. Majority of the respondents were Muslims (33.3%), followed by Buddhists (30.4%) and Hindus (20.3%). Majority of the respondents had less than 5 years of work experience (66.7%) within their present designation. 18 respondents (26.1%) had 10-15 years of work experience and 7.2% had more than 5 years of work experience. there was statistically significant difference when categorical age was cross tabulated with the 9th and 11th questions with $p= 0.004$ and $p=0.003$ respectively. The 9th question was pertaining to if a patient has a right to discuss treatment options and refuse treatment even if his disease could advance and the 11th question was concerning awareness of Advanced Care Planning (ACP). There was a secondary statistically significant correlation between the Questions 1a and 1b on if the respondent has ever received teaching on managing EOL patients and the place where this teaching was obtained with $p= 0.005$. There was statistically significant correlation between position / designation at work and Question 6 on whether the respondent was comfortable with discussions on patient's deterioration and resuscitation status with $p = 0.004$. There was also a secondary statistically significant correlation between the cross tabulation of designation with Question 2a on Experience with taking care of EOL patients and 2b on number of EOL patients seen per month with $p= 0.001$. There was otherwise no other statistically significant difference in comparisons made between majority of the 11 questions in comparison to position / designation at work. There was also statistically significant difference established in the correlation between years of experience and awareness of Advanced Care Planning with $p = 0.000$. However, there was otherwise no other statistically significant difference in comparisons made between majority of the 11 questions in comparison to position / designation at work. In conclusion, the analysis of this questionnaire has successfully established the level of knowledge, attitude and practice of Advanced Care Planning and End Of Life Care amongst doctors who attended the workshop.

INTRODUCTION

Palliative care is an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.

A questionnaire was administered during the 'Advanced Care Planning And End Of Life Care Workshop' conducted in the Auditorium of the Ambulatory Care Centre of Hospital Raja Permaisuri Bainun on 20th January 2017 to all participants comprising Specialists, Medical Officers and House Officers to assess their knowledge, attitude and practice of Advance Care Planning during patient consultations. This report is an analysis of the responses to the questionnaire administered.

LITERATURE REVIEW

Numerous books, journals, articles and websites were studied prior to the topic selection. Amongst the most relevant to our topic of interest is the one given below which demonstrates how scientific evidence has helped policy makers shape and expand the role of modern day Palliative Care practices around the globe.

OBJECTIVES

General Objective(s)

- (i) To assess and analyze the knowledge, attitude and practice of medical practitioners on Advance Care Planning in clinical practice in Hospital Raja Permaisuri Bainun, Ipoh.

Specific Objective(s)

- (ii) To determine analytically the level of awareness on Palliative Care and knowledge, attitude and practice of medical practitioners on Advance Care Planning in clinical practice in Hospital Raja Permaisuri Bainun, Ipoh.

METHODOLOGY

1. The questionnaire designed was administered to all medical practitioners who attended the 'Advanced Care Planning Workshop And End Of Life Care Workshop' conducted at the Auditorium of the Ambulatory Care Centre of Hospital Raja Permaisuri Bainun on 20th January 2017.
2. The completed questionnaires (which were absent of personal identifiers) were collected at the end of the workshop.
3. The data thus compiled were then immediately keyed into a formatted SPSS database.
4. The data was then analyzed statistically to compare level of education and training with levels of awareness on Palliative Care as well as knowledge, attitude and practice of medical doctors on Advance Care Planning.
5. A report was then prepared

RESULTS AND FINDINGS

The 70 respondents who filled out the questionnaires comprised of doctors subdivided into 3 categories namely House Officers (38.8%) Medical Officers (36.3%) and Specialists (12.5%). Amongst the respondents, 34.3% of the respondents were males and the remaining 65.7% were females. The minimum age of the respondents was 24 and the maximum age was 52. The mean age was 30.03 years with a standard deviation of 5.228 years. From the analysis by age, majority of the respondents were aged between 26-30 years (48.6%) followed by 31-35 years (34.3%). Only 1.4% of the respondents were aged above 50 years and 4.3% of the respondents were aged 25 years and below. Majority of the respondents were Muslims (33.3%), followed by Buddhists (30.4%) and Hindus (20.3%). Majority of the respondents had less than 5 years of work experience (66.7%) within their present designation. 18 respondents (26.1%) had 10-15 years of work experience and 7.2% had more than 5 years of work experience.

Responses To The Questionnaire can be summarized as follows:

1. Received teaching on managing EOL patients

Majority of the respondents (71.4%) affirm to have received teaching on managing patients who are dying or with life limiting illnesses during medical school or post-graduate training; of which 78.3% respondents claim began in medical school but 21.7% responded during postgraduate training.

2. Prior experience with taking care of EOL patients

88.2% have taken care of a patient who was dying from serious illness in the past; of which 51.4% usually see less than 5 patients per month, 24.3% each saw 5-10 and more than 5 patients per month each.

3. Specialist / self has made decision not for resuscitation before

95.7% respondents affirm to have come across cases where they themselves or with their specialist decided not to continue treatment due to futility and decided not to resuscitate

4. Been involved in the DNR discussion before

94.3% respondents have previously been involved in the DNR discussion before.

5. Ask Patients Family If They Still Want Active Resuscitation When The Patient Goes Into Cardiorespiratory Arrest

However, 92.9% respondents affirm to still continue to ask patients family if they still want active resuscitation when the patient goes into cardiorespiratory arrest.

6. Comfortable with discussions on patient's deterioration and resuscitation status

Majority of respondents feel they are comfortable(47.1%) discussing with patient and family with regards to their deterioration and resuscitation status. 5.9% felt they were very comfortable, 19.1% were not sure and 23.5% were uncomfortable with the discussion. Only 4.4% were very uncomfortable.

7. Resuscitate patient if family insists on CPR

75% of respondents still resuscitated patients when the family insisted on CPR. Amongst those who continued to resuscitate patients, 42% felt they were honoring the family's request, 30% did it for fear of medicolegal litigations, 16% because they believed they were providing the best treatment to patients and the remaining for other reasons but failed to elaborate.

8. Is withdrawal of care equivalent to euthanasia?

94.2% of respondents did not believe that withdrawal of care was equivalent to euthanasia.

9. Patient has a right to discuss treatment options and refuse treatment even if his disease could advance

62.9% of respondents agreed and 35.7% strongly agreed that the patient has a right to discuss treatment options and refuse treatment even if his disease could advance.

10. Comfortable discussing prognosis of patient when asked by patient's family

64.7% of respondents were comfortable and 2.9% of respondents were very comfortable when discussing prognosis of patient when asked by patient's family. 17.6% were not sure, 11.8% were uncomfortable and 2.9% were very uncomfortable. Only 4 respondents elaborated on why they were uncomfortable or very uncomfortable with discussions on prognosis. The 4 responses recorded were fear of medicolegal litigation, unsure of how to react when asked, had a tendency to relate to family members emotions when asked and also difficulty in assessing family's expectations and ability to accept the situation.

11. Heard of Advanced Care Planning (ACP) before

61.4% of respondents have heard of Advanced Care Planning before. Amongst those who've heard of ACP, 45.5% had their first exposure in HRPB, 13.6% each in medical school and PPUM respectively, and 4.5% each responded medical journals, general reading, PACES, Palliative Care Conference, Palliative Care Course and at a Geriatric Conference.

DISCUSSION

There was no statistically significant difference in comparisons made between majority of the 11 questions in comparison to categorical age. However, there was statistically significant difference when categorical age was cross tabulated with the 9th and 11th questions with $p= 0.004$ and $p=0.003$ respectively. The 9th question was pertaining to if a patient has a right to discuss treatment options and refuse treatment even if his disease could advance and the 11th question was concerning awareness of Advanced Care Planning (ACP). There was a secondary statistically significant correlation between the Questions 1a

and 1b on if the respondent has ever received teaching on managing EOL patients and the place where this teaching was obtained with $p= 0.005$.

There was statistically significant correlation between position / designation at work and Question 6 on whether the respondent was Comfortable with discussions on patient's deterioration and resuscitation status with $p = 0.004$. There was also a secondary statistically significant correlation between the cross tabulation of designation with Question 2a on Experience with taking care of EOL patients and 2b on number of EOL patients seen per month with $p= 0.001$. There was otherwise no other statistically significant difference in comparisons made between majority of the 11 questions in comparison to position / designation at work.

There was also statistically significant difference established in the correlation between years of experience and awareness of Advanced Care Planning with $p = 0.000$. However, there was otherwise no other statistically significant difference in comparisons made between majority of the 11 questions in comparison to position / designation at work.

CONCLUSION

In conclusion, the analysis of this questionnaire has successfully established the level of knowledge, attitude and practice of Advanced Care Planning and End Of Life Care amongst doctors who attended the workshop on 'Advanced Care Planning and End Of Life Care' as mentioned above. It is difficult to assess the generalizability of the results of this analysis to all doctors practicing in HRPB, Ipoh or Malaysia at large as the population of doctors attending this workshop may not be sufficiently representative. This may be because of variations in their scope of practice and subjective interests in Palliative Care.

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REVIEW ARTICLE

Efficacy And Tolerability Of Antidepressants In Palliative Care Patients With Anxiety And Depression – A Systematic Review

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Key Words: Depression, Palliative Care Patients, Antidepressants, Randomized Control Trials With Parallel / Placebo Arms

ABSTRACT

Depression and anxiety, amongst other clinical symptoms, are commonly faced by palliative patients approaching end of life due to terminal life limiting illness. The aim of this study was to systematically review Randomized Controlled Trials on 'Efficacy and Tolerability of Antidepressants in Palliative Patients with Anxiety and Depression' based on set criterion (scores on Hospital Anxiety and Depression Scale - Depression and Anxiety Subscales; HAD-D and HAD-A or other validated scales. A research protocol was first prepared and the PICOS selection process of trials for systematic review employed. A rigorous search was then carried out on Cochrane Central Register of Controlled Trials (CENTRAL), EMBASE (Excerpta Medical Database) and other databases and search engines employing standard search parameters. A total of 7106 study titles were obtained in January 2017. These study titles were then vetted, and 6234 remained after duplicates removed. Only 26 were selected and full articles were obtained electronically by late February 2017. The measurement tools used to assess and monitor clinical improvement during the studies include among others, the Hamilton Rating Scale for Depression (HRSD), Montgomery-Asberg Depression Rating Scale (MADRS), Clinical Global Impression (CGI), Zung Self-Rating Depression Scale (ZSRDS) and the Beck Depression Inventory (BDI). The full text copies of all potentially relevant papers that fulfilled the stage 1 inclusion criteria were obtained and screened for inclusion and exclusion criteria. Subsequently selected studies were screened for methodological quality. All relevant data from these studies were then extracted. The data was then synthesized, findings discussed and conclusions drawn, then a formal dissertation report written out. Analysis across all the included trials shows

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that the heterogeneity was 52 % with all trials analysed simultaneously. But when a subgroup comprising the 7 trials using SSRIs versus Placebo was analysed, heterogeneity reduced to 0%. It can be concluded that in most of the 15 included trials, the Odds Ratio (OR) was more than 1 and the corresponding Absolute Risk Reduction (ARR) was positive and likely represented that the relative risk reduction (or response to the drug) was higher than in the placebo group. The NNT values showed that the response to the interventional drug was satisfactory in most of these trials and this better response was attributable to efficacy of the drug, placebo effect and also due to chance but unlikely due to chance alone. The overall effect of 4.64 too suggests that the null hypothesis could be rejected. A total of 4 studies showed a negative ARR value for their investigational drug versus placebo; and thereby also yielding a Number Needed to Harm (NNH) value which could be explained by low efficacy and / or poor tolerability of the investigational antidepressant. Evidence from this systematic review is in keeping with findings of previous reported systematic reviews on a similar theme. However, it is difficult to make a recommendation in favour of any one antidepressant over another in this subgroup of patients based on efficacy alone. However, it can be concluded that SSRIs such Sertraline and NASSA group drugs were less likely to cause severe side effects compared to tricyclic antidepressants and should be recommended as first line antidepressants in palliative patients if used judiciously.

BACKGROUND

Depression and anxiety, amongst other clinical symptoms, are commonly faced by palliative patients approaching end of life due to terminal life limiting illness. Studies found that at least 17 % were clinically depressed and 20-40% had anxiety as compared to the incidence in the general population of 3% and 9% respectively.

OBJECTIVES AND AIMS

The aim of this study was to systematically review Randomized Controlled Trials on 'Efficacy and Tolerability of Antidepressants in Palliative Patients With Anxiety and Depression' based on set criterion (scores on Hospital Anxiety and Depression Scale - Depression and Anxiety Subscales; HAD-D and HAD-A or other validated scales).

METHODOLOGY

A research protocol was first prepared and the PICOS selection process of trials for systematic review employed. A rigorous search was then carried out on Cochrane Central Register of Controlled Trials (CENTRAL), EMBASE (Excerpta Medical Database) and other databases and search engines employing standard search parameters. The full text copies of all potentially relevant papers that fulfilled the stage 1 inclusion criteria were obtained, saved on the Medley application and screened for inclusion and exclusion criteria. Subsequently selected studies were screened for methodological quality. All relevant data from these studies were then extracted and keyed into an Excel database and relevant tables and diagrams created on the Cochrane Review Manager 5 App. The data was then synthesized, findings discussed and conclusions drawn, then a formal dissertation report written out.

Findings

A total of 7106 study titles were obtained in January 2017. These study titles were then vetted, and 6234 remained after duplicates removed. Only 26 were selected and full articles were obtained electronically by late February 2017. Upon scrutinizing the study designs, inclusion and exclusion criteria for the review, only 15 randomized controlled trials were finally selected by mid-April 2017, for data extraction and analysis in this systematic review. The measurement tools used to assess and monitor clinical improvement during the studies include among others, the Hamilton Rating Scale for Depression (HRSD), Montgomery-Asberg Depression Rating Scale (MADRS), Clinical Global Impression (CGI), Zung Self-Rating Depression Scale (ZSRDS) and the Beck Depression Inventory (BDI).

It can be concluded that in most of the 15 included trials, the Odds Ratio (OR) was more than 1 and the corresponding Absolute Risk Reduction (ARR) was positive and likely represented that the relative risk reduction (or response to the drug) was higher than in the placebo group. The Numbers Needed to Treat (NNT) values showed that the response to the interventional drug was satisfactory in most of these trials and this better response was attributable to efficacy of the drug, placebo effect and also to chance but unlikely due to chance alone. This is true for all the included trials where OR was stated except Leentjens A et al 2003 and Wermuth L et al 1998 which showed an OR value below 1 (0.50 and 0.31 in these 2 respective studies). A total of 4 studies showed a negative ARR value for their investigational drug versus placebo; and thereby also yielding a Number Needed to Harm (NNH) value as stated in the table above which could be explained by low efficacy and / or poor tolerability of the investigational antidepressant. These studies include Leentjens et al 2003 (which studied Sertraline versus placebo in patients with Parkinson's Disease), Wermuth L et al 1998 (which studied Atomoxetine versus Placebo in patients with Parkinson's Disease), Menza M et al 2009 (which studied Paroxetine versus Nortriptyline versus Placebo in patients with Parkinson's Disease) and yielded a negative ARR value of 11.7 and a corresponding NNH of 9 for Nortriptyline versus placebo and Musselman D et al 2006 (which studied Paroxetine versus Desipramine versus

Placebo in patients with Breast Cancer) and yielded negative ARR values and corresponding NNH values for both Paroxetine and Nortriptyline versus Placebo. It might be postulated that the drugs used in these trials were poorly tolerated and yielded poor response in this sub-group of patients.

Analysis across all the included trials shows that the heterogeneity was 52 % with all trials analysed simultaneously. But when a subgroup comprising the 7 trials using SSRIs versus Placebo was analysed, heterogeneity reduced to 0%. The NNT values showed that the response to the interventional drug was satisfactory in most of these trials and this better response was attributable to efficacy of the drug, placebo effect and also due to chance but unlikely due to chance alone. The overall effect of 4.64 too suggests that the null hypothesis could be rejected.

Subjects dropped out of trials due to a wide variety of reasons including personal reasons, worsening of primary medical illness, poor tolerability of the interventional drugs, side effects resulting from other concurrent treatment such as radiotherapy or chemotherapy which would ultimately result in poor tolerability of the investigational drug and any other food or drug for that matter due to vomiting and nausea. The dropout rates were fairly high and in the range of 0% to 27.5%. As we were however reporting on studies done on palliative patients, whose disease and prognosis could suddenly change, a high dropout rate is to be expected. This however, could result in attrition bias which could have affected the overall validity of the results of the trial. Some recent studies have excluded the dropouts from the final analysis as in the case of Schiffer R B et al.

CONCLUSION

In conclusion, this study has succeeded in drawing reliable conclusions with a high level 1A of evidence being a systematic review comprising of 15 randomized controlled trials. Evidence from this systematic review is in keeping with findings of previous reported systematic reviews on a similar theme. However, it is difficult to make a recommendation in favour of any one antidepressant over another in this subgroup of patients based on efficacy alone. However, it can be concluded that SSRIs such Sertraline, and NASSA group drugs were less likely to cause severe side effects compared to tricyclic antidepressants and should be recommended as first line antidepressants in palliative patients if used judiciously.

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ORIGINAL ARTICLE

An Introspection At Trending Of Patient Admissions to the Palliative Ward of a Regional Referral Hospital in Malaysia in 2014, 2015 and 2017

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Key Words: *Palliative Ward, Patient Admissions, Cancer, Non-cancer, Opioids*

ABSTRACT

The Palliative Ward of HRPB has a rapid turnover of patients. The objectives were to analyze the reasons for admission, treatment rendered, duration of admission and outcome of patients at the Palliative Ward, HRPB Ipoh for January to June 2017, compared to the same period in 2014 and 2015. This was a retrospective audit, with purposeful sampling of all admissions for the period of January to June 2017. The data was keyed into an SPSS database from the electronic patient information system (SPP). Relevant personal identifiers were omitted. Data collected was then analyzed between cancer and non-cancer patients and comparisons made to data collected for the same period in 2014 and 2015. A total of 821 admissions were included, 277 for the period of January to June 2017, with comparisons made to 246 and 298 admissions respectively for the same period in 2015 and 2014. A notable rise in the percentage of non-cancer patients in 2017 (24.55%) versus 8.72% in 2014 and 9.76% in 2015 which comprised Chronic Renal Failure (20.69%), Chronic Liver Failure (18.10%) and End Of Life Care (24.14%) was seen. However, patients with cancer predominated with Respiratory Malignancies (21.42%) followed by Gastrointestinal Malignancies (13.19%) and Breast Malignancies (12.06%). The presenting features include Pain (26.31%), Dyspnea (21.56%) and Fever (10.23%). Of interest, pain was more prevalent amongst cancer (32.48%) versus non-cancer patients (5.43%) but Dyspnea showed almost equal prevalence (20.42% versus 32.61%). The mainstay of pharmacological treatment was Opioid Therapy for 61.38% and Antibiotics (12.81%). Most patients were admitted for 5 days or less (54.68%), discharged home (53.11%) or passed away at the Palliative Ward (34.47%). The reasons for admissions to the palliative ward

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have been examined and no significant difference in the clinical presentation and treatment rendered between cancer and non-cancer palliative patients have been elucidated.

BACKGROUND

Palliative care is rapidly gaining prominence as an advancing specialized medical field in Malaysia and world over. According to WHO, Palliative care is an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.

The Palliative Care Unit (PCU) of Hospital Raja Permaisuri Bainun, Ipoh now has a total of 12 beds and a high turnover of inpatients. The Palliative Unit is headed by a Palliative Physician and has 4 resident Medical Officers. The ward is managed by one Nursing Sister and 15 trained and experienced registered staff nurses who work in shifts.

This study aims to analyze quantitatively if the Palliative Ward is meeting the objectives of WHO in keeping with national requirements in fulfilling its' role as a regional referral center for palliative, supportive and end of life inpatient care and international standards of care. This study was prompted due to the unavailability of study reports on patient demography, reasons for admission, treatment rendered, duration of admission and outcome of patients comparing cancer and non cancer diagnoses at the Palliative Ward, RPBH, Ipoh.

OBJECTIVES

General Objective

To analyze the patient demography, reasons for admission, treatment rendered, duration of admission and outcome of patients at the Palliative Ward, HRPB Ipoh.

Specific Objectives

To describe categorically palliative patient demography, average duration of admission, reasons for admission (e.g. Pain, Dyspnoea), treatment rendered (e.g. Pharmacological management, Other Interventions such as pain management) and outcome of patients (e.g. discharged home well or transferred out to the Palliative Ward of Hospital Batu Gajah for long term stay) as well as to compare the study analysis with previous years' studies for further reference of future studies.

LITERATURE REVIEW

Numerous books, journals, articles and websites were studied prior to the topic selection. Amongst the most relevant to our topic of interest is the one given below which demonstrates how scientific evidence has helped policy makers shape the role of modern day Palliative Care practices around the globe :-

According to Evaluation of a palliative care service: problems and pitfalls by McWhinney, M J Bass, A Donner, *BMJ* 1994; 309 :1340 i, 'In designing evaluations of palliative care services, investigators should be prepared to deal with the following issues: attrition due to early death, opposition to randomisation by patients and referral sources, ethical problems raised by randomisation of dying patients, the appropriate timing of comparison points, and difficulties of collecting data from sick or exhausted patients and care givers. Investigators may choose to evaluate a service from various perspectives using different methods: controlled trials, qualitative studies, surveys, and studies. Randomised trials may prove to be impracticable for evaluation of palliative care.'

In reviewing the article 'Palliative care research: trading ethics for an evidence base by A Jubb, *J Med Ethics* 2002;28:6 342-346 doi:10.1136/jme.28.6.342ii, it can be inferred that 'Good medical practice requires evidence of effectiveness to address deficits in care, strive for further improvements, and justly apportion finite resources. Nevertheless, the potential of palliative care is still held back by a paucity of good evidence. These circumstances are largely attributable to perceived ethical challenges that allegedly distinguish dying patients as a special client class. In addition, practical limitations compromise the quality of evidence that can be obtained from empirical research on terminally ill subjects.

This critique aims to appraise the need for focused research, in order to develop clinical and policy decisions that will guide health care professionals in their care of dying patients. Weighted against this need are tenets that value the practical and ethical challenges of palliative care research as unique and insurmountable. The review concludes that, provided investigators compassionately apply ethical principles to their work, there is no justification for not endeavouring to improve the quality of palliative care through research.'

With reference to 'Using clinical study to promote evidence-based medicine and clinical effectiveness - an overview of one health authority's experience by Auplish, S. (1997), *Journal of Evaluation in Clinical Practice*, 3: 77–82. doi:10.1111/j.1365-2753.1997.tb00070. 'Health care purchasers are facing increasing pressure to make the best use of their limited resources and to purchase only those services known to be clinically effective. This paper describes one health authority's experience of promoting clinical effectiveness through clinical study and clinical guidelines. It highlights the central role of public health physicians in working closely with clinicians on the one hand and managers on the other, to promote evidence-based medicine. The recent changes in the funding arrangements for study have allowed purchasers to have more say in what should be studied, and link study and clinical effectiveness with contracts.'

The article 'Are There Differences in the Prevalence of Palliative Care-Related Problems in People Living With Advanced Cancer and Eight Non-Cancer Conditions? A Systematic Review. *Journal of Pain and Symptom Management*, by Moens K., Higginson I., Harding R., Brearley S., Caraceni A., Cohen J., Costantini M., Deliens L., Francke A., Kaasa S., Linden K., Meeussen K., Miccinesi G., Onwuteaka-Philipsen B., Pardon K. Pasman R. Pautex S., Payne S., & Vanden Block, L. (2014), *Journal of Pain and Symptom Management*, 48(4), 660- 677.iv reports that 'There are commonalities in the prevalence of problems across cancer and non-cancer patients, highlighting the need for palliative care to be provided irrespective of diagnosis. The methodological heterogeneity across studies and the lack of non-cancer studies need to be addressed in future research.'

From reviewing these articles, it can be inferred that there is an emerging need for periodic regional studying to help direct future policy makers towards further improving the Palliative care services regionally and thereby meeting the needs of the expanding population approaching end of life with chronic diseases. This study will make periodic analyzed data on the palliative care population requiring hospitalized care accessible and will then allow comparisons to be made to enable quantitative measures on the needs of the ever expanding palliative care population.

DEFINITION OF TERMS

Palliative care – refers to an approach that improves the quality of life of patients and their families facing the problems associated with life threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.

Pain Management – Patient are commenced on and titrated on a variety of NSAIDS, Opioids, Neuropathic agents to control pain as well as referred to the Anesthetic Pain Services (APS) Team in view of spinal or neural blocks to control severe cancer pain comprising somatic, visceral and neuropathic pain.

Terminal Discharge – refers to patients who are discharged for end of life at home on personal or family request when death is expected to occur within 48 hours.

To Come Again to Palliative Care Unit (TCA PCU) – Refers to an appointment given for the patient to be seen again at the Palliative Unit Clinic, HRPB, Ipoh.

Transfer Out To Hospital Batu Gajah –

Patients with poor social / family support and no carers to take care of patients upon discharge are usually offered the option of a long term placement at the Palliative Ward of Hospital Batu Gajah which is overseen by the Specialist of the Palliative Unit of HRPB, Ipoh.

The patients admitted there are cared for by a dedicated team of nurses and headed by a resident Medical Officer. Cost of long term care is borne by the Ministry of Health Malaysia.

METHODOLOGY

This study was a retrospective cross-sectional study looking at admissions from January – June of 2017 at the Palliative ward at HRPB, Ipoh in comparison to the same periods in 2015 and 2014.

This study was conducted with data collection and keying in of data into an SPSS database from the ward's admission book and electronic patient information system or 'Sistem Pengurusan Pesakit' (SPP) retrospectively for the period of January to June 2017. The data was immediately keyed into a SPSS database employing anonymous decoding of all personal identifiers by separating the personal identifiers into a separate database (specifically Name, MRN and Coded Number). Data collected was compared to and analyzed to compare the findings between cancer and non-cancer patients receiving palliative care at the Palliative Ward for the period of January to June 2017. In addition, the data was also then analyzed with comparisons made to the data collected for the period of January to June 2014 during the course of the audit "A Study on Patient Admissions to the Palliative Ward of Hospital Raja Permaisuri Bainun, Ipoh for the period of January to June 2014" and to the audit "Review of Patient Admissions To The Palliative Ward Of A Regional Referral Hospital" which looked at admissions for the period of January to June 2015 for reasons for admission, treatment rendered, duration of admission, and outcome of patients at the Palliative Ward of Hospital Raja Permaisuri Bainun, Ipoh statistically using SPSS.

Study Population

All Palliative patients admitted to the Palliative Unit at HRPB Ipoh who fulfill the inclusion criteria were included.

Sample size

A universal sampling was done for patient admitted at HRPB Palliative Unit from January to June 2017 with comparisons made to data collected from all patients admitted to the Palliative Ward during January to June 2014 and January to June 2015.

Inclusion Criteria

All in-patients at the Palliative Ward during the period of January to June 2017 (including patients who have passed away during the course of the relevant admission), with comparisons made to data collected from all patients admitted to the Palliative Ward during January to June 2014 and January to June 2015.

Exclusion criteria

- All day care patients at the Palliative Ward during the period of January to June 2017, 2015 and 2014.
- All lodgers at the Palliative Ward during the period of January to June 2017, 2015 and 2014.

Data Collection

This was a retrospective, cross sectional study comprising data collection and keying in of data into an SPSS database from the ward's admission book and electronic patient information system or 'Sistem Pengurusan Pesakit' (SPP) retrospectively for the period of January to June 2017 and keyed in into a SPSS database employing anonymous decoding of all personal identifiers by separating the personal identifiers into a separate database (specifically Name, MRN and Coded Number).

Data collected was compared to and analyzed to compare the findings between cancer and non-cancer patients receiving palliative care at the Palliative Ward for the period of January to June 2017. In addition, the data was also analyzed with comparisons made to the data collected for the period of January to June 2014 during the course of the audit "A Study on Patient Admissions to the Palliative Ward of Hospital Raja Permaisuri Bainun, Ipoh for the period of January to June 2014" and to "Review of Patient Admissions To The Palliative Ward Of A Regional Referral Hospital" which looked at admissions for the period of January to June 2015 for reasons for admission, treatment rendered, duration of admission, and outcome of patients at the Palliative Ward of Hospital Raja Permaisuri Bainun, Ipoh statistically using SPSS v19.

ETHICAL CONSIDERATIONS

To ensure that this is in keeping with national and international standards of practice, NMRR and MREC approval is to be obtained prior to the study. Patient confidentiality was protected and not revealed in any part of the analysis, full report, presentation or publication. This was ensured by keying in the data collected into a SPSS database employing anonymous decoding of all personal identifiers by separating the personal identifiers into a separate database. The decoded personal identifiers were then destroyed at the end of the study to ensure anonymity of the study population and thus minimize breach in patient confidentiality.

RESULTS

A total of 821 admissions were included, 277 for the period of January to June 2017, with comparisons made to 246 and 298 admissions respectively for the same period in 2015 and 2014.

The study population comprised mainly of Chinese (63.09%), males (52.3%) were aged between 61 and 80 years old (54.5%) from Ipoh (56.1 %) who were admitted to the Palliative Ward of Raja Permaisuri Bainun Hospital, Ipoh.

A notable rise in the percentage of non-cancer patients in 2017 (24.55%) versus 8.72% in 2014 and 9.76% in 2015 which comprised Chronic Renal Failure (20.69%), Chronic Liver Failure (18.10%) and End Of Life Care (24.14%) was seen. However, patients with cancer predominated (85.66%) with Respiratory Malignancies (21.42%) followed by Gastrointestinal Malignancies (13.19%) and Breast Malignancies (12.06%).

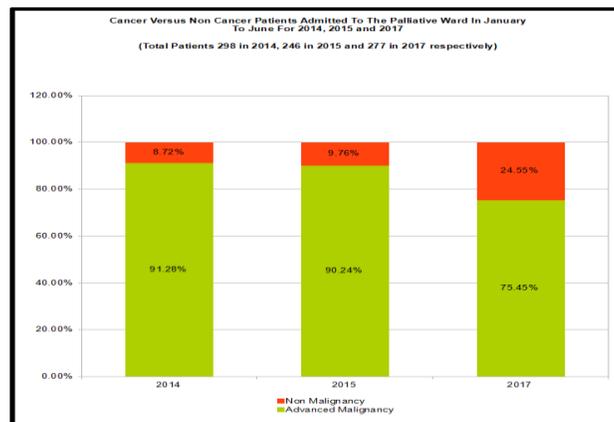


Chart 1: Breakdown of Cancer Versus Non Cancer Patients Admitted to The Palliative Ward of Raja Permaisuri Bainun Hospital for the Period of Study

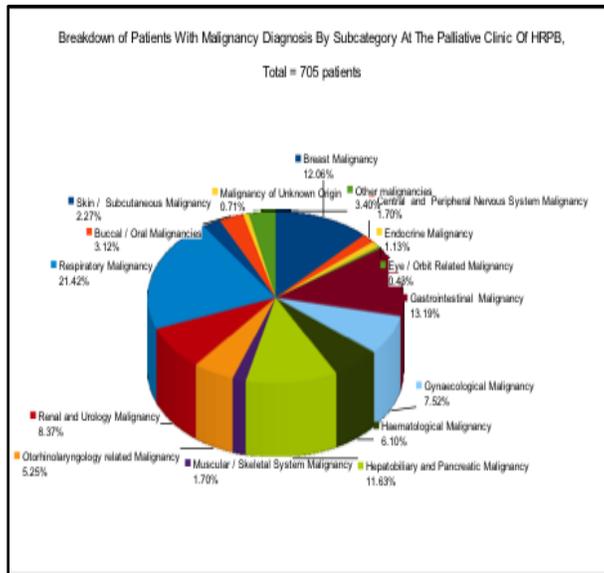


Chart 2 : Breakdown of Patients With Malignancy Diagnosis By Subcategory at the Palliative Ward, HRPB, Ipoh

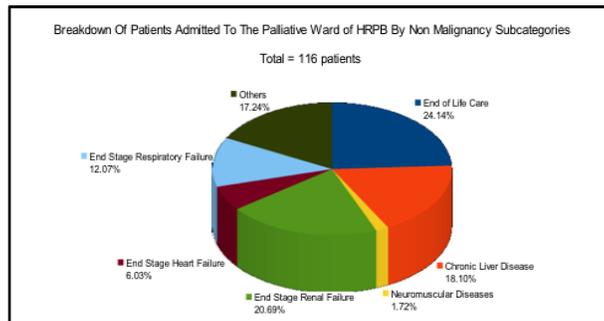


Chart 3 : Breakdown of Patients With Non-Malignancy Diagnosis By Subcategory at the Palliative Ward, HRPB, Ipoh.

The major presentings symptoms include Pain (26.31%), Dyspnea (21.56%) and Fever (10.23%). Some others additionally were admitted for Nausea and vomiting, Reduced consciousness, seizures or restlessness, Weakness or paresis, Metabolic disorders and End of life care amongst other causes for admission.

Of interest, Pain was more prevalent amongst cancer (32.48%) versus non-cancer patients (5.43%) but Dyspnea showed higher prevalence in non cancer patients (32.61% versus 20.42%).

The mainstay of pharmacological treatment was Opioid Therapy for 61.38% and Antibiotic administration (12.81%).

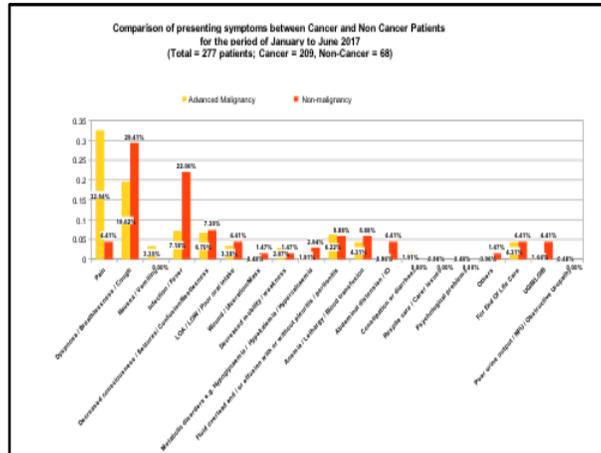


Chart 4 : Comparison Of Presenting Symptoms Between Cancer and Non-Cancer Patients for the period of January to June 2017

About half of the patients were admitted for 5 days or less (54.68%). 53.11% of patient were discharged home, while 34.47% passed away at the Palliative Ward. The remaining patients were transferred out to Palliative Ward Hospital Batu Gajah (6.33%) or were allowed terminal discharge home (6.09%).

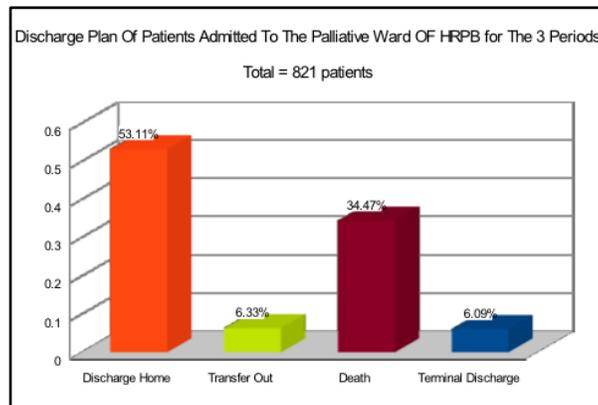


Chart 5 : Discharge Plan of Patients Admitted To The Palliative Ward Of Raja Permaisuri Bainun, Hospital For The 3 Periods Of The Study

DISCUSSIONS

There appears to be a gradual rise in number of non cancer patients admitted to the Palliative Ward over the last few years. The notable rise seen in the percentage of non-cancer patients in 2017 (24.55%) versus 8.72% in 2014 and 9.76% in 2015 which comprised Chronic Renal Failure (20.69%), Chronic Liver Failure (18.10%) and End Of Life Care (24.14%) may be attributed to increasing awareness amongst the medical fraternity at large on the role of palliative care in this subgroup. The reasons for admissions have remained fairly constant over the three periods with no clinically significant difference in presenting clinical symptoms between cancer and non cancer patients observed in 2014 and 2015. However, in 2017, a p value of 0.002 was observed for this comparison likely due to the higher numbers of non-cancer patients and a constant con-comittant observation of higher incidences of pain amongst cancer patients and dyspnea amongst non-cancer patients.

Another noteworthy observation is the low and fairly constant rates of terminal discharge (average 17.7% of total dying patients which could be explained by the limited framework of community palliative support and services especially for non cancer patients and after hours coverage for both groups.

CONCLUSION

The reasons for admissions to the palliative ward have been examined for a total of 821 patients for the period of January to June 2014, 2015 and 2017 and chart a gradual rise in non-cancer patients over the three periods which could be attributed to growing awareness on the needs of Palliative Care.

No constant significant difference in the clinical presentation between cancer and non-cancer palliative patients have been elucidated except for the difference in prevalence of Pain and Dyspnea which proved to be significant in 2017 where the percentage of non-cancer patients were also relatively higher.

The low rates of terminal discharge which point at limited community palliative care services drive home an important message on the need to expand and further develop community palliative care services in Ipoh and Perak; and may well be generalized to Malaysia at large.

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Sponsors / Declaration of Conflict of Interest:

This study was self sponsored and no conflict of interest is declared.

ORIGINAL ARTICLE

Initial Experience and Outcome of Extracorporeal Shockwave Lithotripsy (ESWL) by Dornier Gemini EMSE 220-F XXP-HP in Hospital Sultanah Aminah, Johor Bahru Malaysia

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Key Words: *Extracorporeal shockwave lithotripsy, urolithiasis, stone-free rate*

ABSTRACT

BACKGROUND & OBJECTIVES:

Extracorporeal Shockwave lithotripsy (ESWL) was developed in early 1980's and proven to have excellent safety profile while achieving acceptable stone clearance. This study aims to assess the efficacy and safety of ESWL with Dornier Meditech lithotripter (Dornier Gemini EMSE 220F XXP-HP) in managing the patients with urolithiasis.

METHODOLOGY:

A total of 224 patients have undergone outpatient ESWL for renal and ureteral calculi from November 2016 till June 2018 in Hospital Sultanah Aminah Johor Bahru. The patients' demographic data, stone characteristics & locations, energy and total number of shockwaves were investigated along the stone-free rate and periprocedural complications.

RESULTS:

We analysed 217 patients who have underwent ESWL, excluding 7 defaulted follow-up patients. 169 (77.8%) had renal stones and 48 (22.1%) had ureteric stones. The mean age of the patients was 52.55 ±12.29 years with male: female= 1.46:1. The mean ± SD stone size

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was 1.39 ± 0.55 cm. Treatment success (defined as complete clearance of ureteric stones, stone-free or clinically insignificant residual fragments of <0.4 cm for renal stones) was 59.7% for renal stones and 58.3% for ureteric stones. 79 patients required additional sessions to achieve stone clearance. Complications occurred in 11.1% patients with majority of them ($n=8$) suffered from loin or suprapubic pain. Using simple Logistic Regression analysis, the only pre-treatment factor found to have significant effect on stone-free rate was the stone size ($p<0.001$).

CONCLUSION:

Extracorporeal shockwave lithotripsy using Dornier Gemini EMSE 220F XXP-HP is a safe, non-invasive and relatively effective modality for treating the renal and ureteric calculi.

INTRODUCTION

Extracorporeal Shockwave lithotripsy (ESWL) was initially developed in the early 1980's and proven to have an excellent safety profile while achieving acceptable stone clearance [1]. European Association of Urology (EAU) has recommended ESWL as the preferred first-line treatment for all the kidney stones smaller than 10mm [2].

Years of experience utilizing ESWL for stone treatment has helped many urologists optimize its use and minimize its complications. Deciding an optimal treatment for a given patient depends very much on variables, for example, stone-related factors, renal anatomical and clinical factors [3]. Improvements in technique along with a more stringent selection on patients and stones have helped ESWL remain a mainstay in the treatment of stone diseases. The newer lithotripters have better improved quality of stone localization imaging with either fluoroscopy or with ultrasound. Moreover, the manufacturers have improved the functionality of ESWL machine and the patients' comfort by using coupling bellows.

Thus, in our centre, Dornier Gemini inevitably becomes one of the paramount important treatment assets for urolithiasis patients. We would like to study the outcome in terms of stone fragmentation and clearance, in addition to the incurred complications, which subsequently require ancillary management and extra health cost.

This study aims to assess the efficacy and safety of ESWL with Dornier Meditech lithotripter (Dornier Gemini EMSE 220F XXP-HP) in the management of the patients with renal and ureteral calculi.

MATERIALS & METHODS

A total of 224 patients have undergone outpatient treatment with ESWL for their renal or ureteral calculi from November 2016 till June 2018 in Hospital Sultanah Aminah Johor Bahru.

The patients' demographic data, targeted stone characteristics & locations, energy amount and the total number of shockwaves were investigated along with the stone-free rate and periprocedural complications. All treated patients were reviewed with post-procedural imaging either by ultrasonography or by computed tomogram.

Complete case-notes and imaging were evaluated, and follow-up of these patients in our out-patient urology clinic. Full blood count, urea and creatinine, electrolytes, serum uric acid, coagulation profile, urinalysis, urine culture and electrocardiogram were the standard routine investigations before the ESWL. Stone size is determined by the widest diameter for renal and ureteric stones. Stones are categorized according to stone size into ≤ 10 , 11-15 and 16-20 mm diameter. Pre-treatment plain abdominal X-ray films of the kidney, ureter, and bladder (KUB), as well as ultrasonography or non-contrasted CTU are used for the initial diagnosis.

The patients who were taking Aspirin or other antiplatelets were requested to discontinue for 7 days before ESWL. All subjects did not have pre-procedural fasting. All patients were administered with the oral analgesia- tablet paracetamol 1gram with single-dose Indometacin.

The patients' vital signs heart rate, blood pressure (BP) and Oxygen saturation (pulse-oxymetry) were monitored during the procedure. At the end of treatment, they were discharged on oral medications including either Diclofenac 50 mg tds or T. tramadol 50mg tds, T. paracetamol 1g QID and Ural 1 sachet OD for 2 weeks.

The patients were treated in the supine position with stone localization using the fluoroscopy or ultrasound. ESWL settings used were as follows: For the Kidney, Number of shockwaves=3000-3500, Energy level (max)=5-6, Starting: 100 shock waves with Level 1 with frequency SW/min=80. Energy levels start with E1 and gradually increase to a maximum of E5-6. The average and maximum energy levels, as well as the total energy delivered, are automatically shown at the end of each session. For the Ureter: Number of shockwaves = 3500-4500 Energy level (max)=4 (upper ureter), 6 (lower ureter) with Frequency SW/min Upper and middle ureter=90, Lower ureter=120. All treatments were administered on the outpatient basis for a maximum of three sessions.

The stones will be reassessed initially after 2 weeks using KUB and ultrasound to assess fragmentation. Repeat treatment would be applied immediately after follow-up if there was no or inadequate fragmentation of the stone. The number of shock waves, shock waves

intensity, shock-wave energy, stone-free rate, auxiliary procedure rate, re-treatment rate and complication rate were assessed.

Treatment success was defined as complete clearance of ureteric stones, while being stone-free or the presence of clinically insignificant residual fragments of <4 mm was considered as a success for the renal stones. The success rate was correlated with the stone size and site. Those patients with failed therapy were offered an alternative treatment.

Chi-Square test was used for statistical evaluation, with the level of significance set as $p < 0.05$. Univariate and Multivariate Binary Logistic Regression analysis were used to determine factors affecting complete stone clearance.

RESULTS

We analysed 217 patients who have underwent extracorporeal shock wave lithotripsy in our centre, excluding 7 patients from this study due to default follow up. 169 patients (77.8%) had renal stones and 48 patients (22.1%) had ureteric stones. The majority of the stones were located at the renal pelvis (33.6%), followed by proximal ureter (19.4%), lower pole kidney (17.1%) and upper pole kidney (11.5%). The mean age of the patients was 52.55 ± 12.29 years. There are 129 male patients and 88 female patients (male: female ratio= 1.46:1). The mean \pm SD stone size was 1.39 ± 0.55 cm. Mean shockwaves given was 2902.86 ± 299.63 and mean energy was 99.29 ± 18.76 kJ. (Table 1) Treatment success (defined as complete clearance of ureteric stones, stone-free or clinically insignificant residual fragments of <0.4 cm for renal stones) was 59.7% for renal stones and 58.3% for ureteric stones. 79 (61.2%) patients required the additional sessions of extracorporeal shock wave lithotripsy to archive stone clearance. Most patients who failed ESWL underwent adjunctive treatment such as ureteroscopic lithotripsy, percutaneous nephrolithotripsy and chemolysis. Looking at the stone-free rate in relationship to stone location, the renal pelvis was the best location for stone clearance with 33.3% among all the stones (Figure 1). Complications occurred in 24 patients (11.1%) with a majority of them (n=8) suffered from loin or suprapubic pain (Table 2). None of the patients had severe renal colic mandating hospital admission. Steinstrasse, which is a complication of ESWL in which stone fragments obstruct the ureter to form a “street of stone”, occurred in 3 patients (1.3%). In this series, the urinary tract infection post-procedure occurred in 2 patients (0.9%). Fortunately, there was no patient developed urosepsis that warrant admission. There was only 1 patient developed subcapsular renal hematoma after ESWL and was treated conservatively without surgical intervention. None of these patients required blood transfusion. Using simple Logistic Regression analysis, the only pre- treatment factor found to have significant effect on stone-free rate was the stone size ($p < 0.001$).

Patient Demographics and Stone Characteristics	Value
Mean Age, (years)	52.55(12.29)
Gender, n(%)	
Male	129(59.4)
Female	88(40.6)
Stone Side, n(%)	
Right	106(48.8)
Left	109(50.2)
Bilateral	2(0.9)
Stone location, n(%)	
Lower pole	37(17.1)
Middle pole	15(6.9)
Upper pole	25(11.5)
Renal pelvis	73(33.6)
Proximal Ureter	42(19.4)
Distal ureter	6(2.8)
PUJ	19(8.8)
Stone size range, n(%)	
<1.0cm	57(26.3)
1.0-2.0cm	139(64.1)
>2.0cm	21(9.7)
Mean energy, kJ (SD)	99.29(18.76)
Mean shock	2909.86(299.63)
Mean duration, min (SD)	56.30(11.80)

Table 1

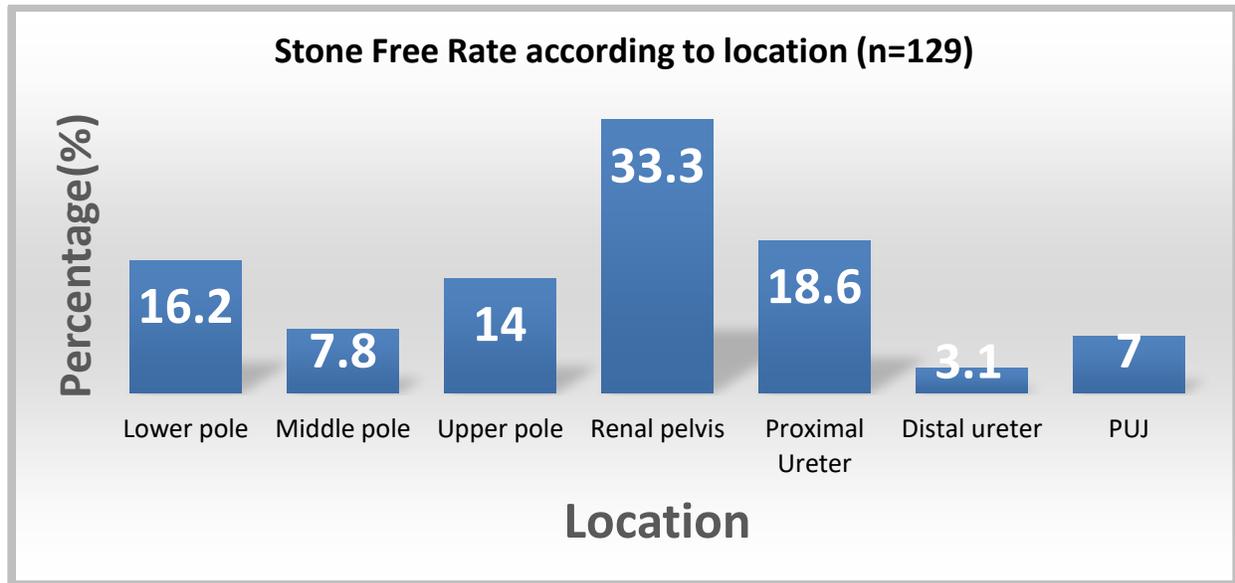


Figure 1

Complication	Total number of cases (%)
Hematoma	1(4.2)
Blood transfusion	0
Hematuria	5(20.8)
Sepsis requiring admission	0
Urinary tract infection	2(8.3)
Severe loin pain requiring admission	0
Loin or Suprapubic pain	8(33.3)
Steinstrasse	3(12.5)
Multiple complications	5(20.8)

Figure 2

DISCUSSION

Urolithiasis is a common urological disease in Malaysia because of the geographical location, hot climate, dehydration and dietary factors. In Malaysia, the incidence was lower than 40/100000 in the 1960s but it grew dramatically to 442.7/100,000 after 3 decades later [4]. Upper urinary tract stones are seen to be increasing trend, holding a major portion of urolithiasis [5]. The advent of extracorporeal shockwave lithotripsy in the 1980s propelled the treatment of urolithiasis from open surgery into the non-invasive procedure [1]. Its use has come under scrutiny with a shift in focus to cost-effectiveness and

healthcare outcomes. Advances in lithotripter technology have spawned several generations of devices that strive to improve stone-free rates and reduce complications. ESWL is non-invasive, it usually requires none or minimal anaesthesia and can be performed as day-care procedure [1, 2, 3], therefore it remains a good choice for treating small renal and ureteric stones among the Malaysian population.

Dornier Gemini is a premier, fully integrated workstation that provides an unparalleled platform for Lithotripsy [6]. It is integrated with shock-wave technology, tends to deliver consistent shock wave to boost the success of non-invasive kidney stone treatments with proper patient positioning. Dornier Gemini has the advantages of greater comfort to our patients during the procedures, providing an excellent quality image with the fluoroscopy and ultrasound to localize renal stones [6].

In our study, we have more male preponderance (M:F 1.46:1). Treatment success was 59.7% for renal stones and 58.3% for ureteric stones, regardless of the gender. This is comparable with the reported success rate of 41-90%, despite the discrepancy rate in the efficacy of ESWL [7]. The cross-sectional design raises the issue of potential selection bias which are likely to have influenced the ESWL treatment results. Apart from the upper calyx, intra-renal stone location was not associated with treatment efficacy, whereas an inverse relationship was found between stone size and treatment efficacy. In other words, the smaller calculi resulted in a higher stone clearance rate. Our patients could tolerate the ESWL therapy fairly with oral analgesia without any sedation.

The overall complications rate in our study was 11.1% (n=24) with the majority of them (n=8) suffered from loin or suprapubic pain. No major complication was reported in our study. None of our patients had severe renal colic mandating admission. Steinstrasse occurred in 3 patients (1.3%) and urinary tract infection post-procedure in 2 patients (0.9%). Those patients who experienced steinstrasse (streets of stones) were treated with ureteroscopic lithotripsy eventually and achieved stone-free status after that. On the other hand, the infection rate is very low in this study. The exact pathophysiology of sepsis and urinary tract infection secondary to ESWL is not understood completely. Cavitation bubble collapse created forces applied to the stones during the extracorporeal shockwave lithotripsy may cause damage to the small vessels that would result in the release of cell mediator and inflammatory response cells. Thus, the pathogens which present in the urine would pass and enter the bloodstream, resulting in acute infection or sepsis. There are controversies in the literature regarding the need for antibiotic prophylaxis in the patients undergoing extracorporeal shock wave lithotripsy. A meta-analysis study was performed to evaluate the efficacy of antibiotic prophylaxis in patients with proven sterile urine before they underwent ESWL and found that the incidence of urinary tract infections after ESWL is fairly low [8], as also shown by our present study, thus we suggest that the prophylaxis antibiotics is not necessary prior to ESWL. Previous literature reported the incidence of acute renal failure after ESWL. Very rarely, it was associated with serious complications such as bowel perforation and gastrointestinal injury. Long term risk of hypertension and chronic renal disease is not associated with ESWL [9].

The limitation of this paper is lacking data collection of the patients' body mass index, skin to stone distance, urinary tract anatomy & stone composition. These factors are particularly important to affect the overall outcome of ESWL treatment. We did not examine the treatment failure causes and most patients seen post-treatment were evaluated with inherent diagnosis limitation by X-ray KUB or ultrasonography. Though non-contrasted CT is the most sensitive radiological tool to assess urinary stones, we did not advocate its use post ESWL therapy due to long-waiting appointments and risk of radiation justifications. Further studies are warranted into the efficacy of mobile lithotripsy service, the learning curve for ESWL technicians and commercialised health care services in general.

CONCLUSION

Extracorporeal shockwave lithotripsy using Dornier Gemini EMSE 220F XXP-HP is a reasonably safe, highly tolerable, non-invasive and relatively effective modality for treating the renal and ureteric calculi.

ACKNOWLEDGEMENT

The authors reported no conflict of interest and no funding was received for this work.

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CASE REPORT

Management Challenges In Monophasic Synovial Sarcoma Of Distal Femur With Lung Metastasis: To Amputate Or Limb-Salvage Surgery

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Key Words: *Synovial sarcoma, amputation, malignant soft tissue tumours, invasive*

INTRODUCTION

Synovial sarcoma is one of the commonest malignant soft tissue sarcomas with poor prognosis, especially when detected in late stages. It has a wide spectrum of biologic behavior, a high degree of local invasiveness and capability to spread trans compartment. There appears to be a lack in the reporting of these tumours locally as the challenges of diagnosis and management are often demanded at advance stages. We present a case of synovial sarcoma in an adolescent who presented very late with a huge lesion over right thigh with metastasis to the lung. This report highlights the diagnostic challenges which directly affect the type of surgical intervention and physical outcomes of patient.

CASE REPORT

A 16 year old female patient was referred to our clinic following the complaint of a mass over her right distal thigh for the past 2 years. The mass initially started as a small lesion, however, over a period of 4 months, its size increased progressively. Physical examination of the lesion demonstrates a 15 cm mass, which was tender, with normal overlying skin.

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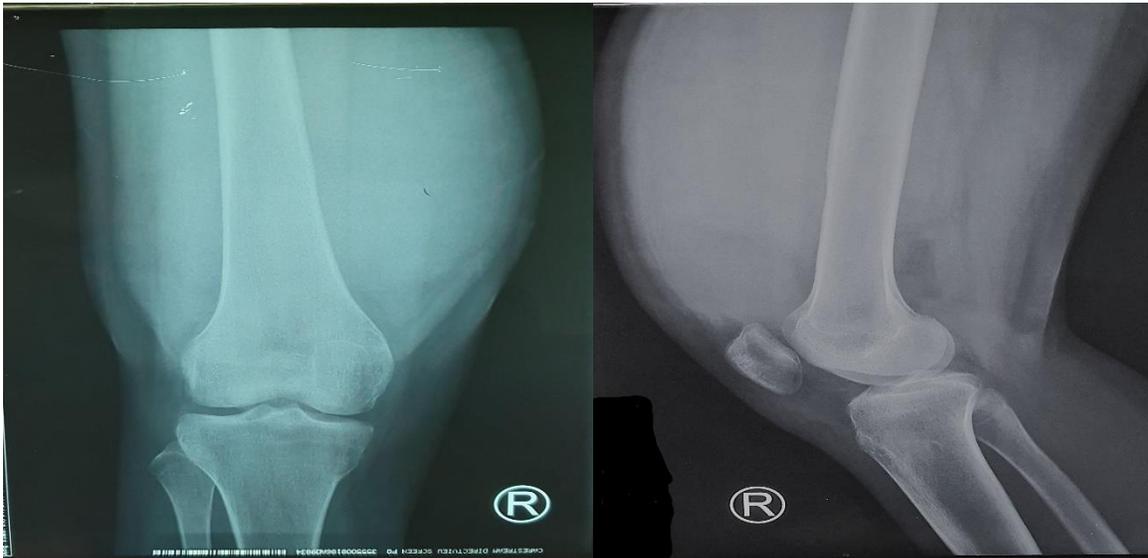
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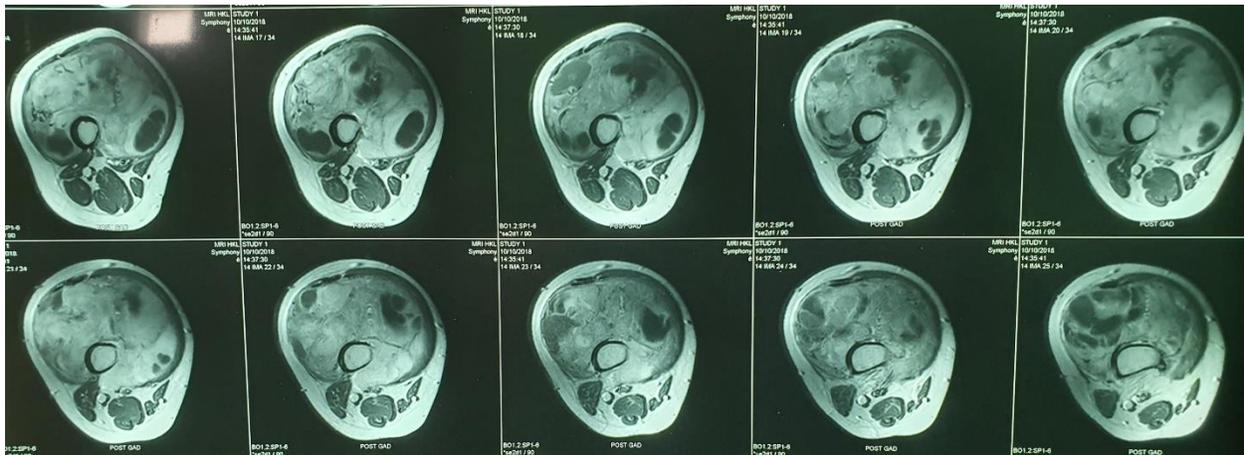
Fig 1 & 2:- Right Distal Thigh Mass

Right thigh revealed a soft tissue mass over the right distal thigh, measuring 8.9 x 11.5 x 17.0cm with normal underlying bones (Figure 1 & 2). MRI of the right distal thigh was done for the patient, which revealed a large, lobulated mass with its main bulk within the distal anterior compartment of the thigh. The mass is predominantly hypointense on T1W1 with heterogenous signal intensifies on T2W1. There is a heterogeneous enhancement post gadolinium contrast. The mass is encasing the distal femur, with no intramedullary extension.



Following the MRI, a trucut biopsy of the mass was done. Multiple strips of tissue from the mass were sent for histological evaluation. Histologically, the tumour consisted of spindle-shaped cells arranged in sheets, short fascicles, and pericytomatous pattern. These cells have ovoid, fusiform hyperchromatic nuclei with dispersed chromatin and inconspicuous nucleoli and indistinct cytoplasmic border. Immunohistochemistry evaluation shows the tumour cells were positive for TLE1, S100, CK7, EMA, and CKAE1/AE3, whilst negative for CD34 and Desmin. The diagnosis of monophasic synovial sarcoma of right distal thigh was made.





Contrast-enhanced computed tomography (CECT) was done for the patient which revealed 3 lung nodules scattered over bilateral lung fields and its ranging in size from 2 to 3.5mm, highly suggestive of lung metastasis. The patient was then subjected to 3 cycles of neoadjuvant chemotherapy using a regimen of Ifosfamide and Doxorubicin.

Repeat MRI post-neo-adjuvant chemotherapy, shows an increasing tumour size, measuring 9.3 x 12.6 x 19.0cm, with unchanged locoregional involvement of the lesion. The patient had undergone above-knee amputation. Intra-operatively, the cross-section of the tumour revealed multiple areas of necrosis and hemorrhage. Post-operatively, patient was subjected to adjuvant chemotherapy and radiotherapy, as well as rehabilitation following the above-knee amputation of right lower limb. Upon a 1-year followup, revealed a thankful patient ambulating with prosthesis and resumed studies in a local university.

DISCUSSION

Synovial sarcomas account for 7% to 10% of human soft-tissue sarcomas [1]. It arises at any age, but mainly affects young adults and more commonly males. Clinically, they appear as deep-seated slowly growing masses. In more than half of the cases, metastases develop, primarily to the lungs but also to the lymph nodes and bone marrow [1]. Synovial sarcomas occur most frequently in the lower and upper extremities, especially in para-articular regions and are associated with tendon sheaths, bursae, and joint capsules. Other frequent locations include the head, neck, and trunk, but, in rare cases, tumors have also been reported in the heart, lung, esophagus, small intestine, prostate, mediastinum, and retroperitoneum. The diversity of organs where synovial sarcomas arise contradicts its term. In fact, the term synovial sarcoma was coined in the first half of the 20th century to denominate tumours arising near joints which show a microscopic resemblance to synovial tissue. Later, consequent studies have demonstrated that synovial sarcomas display ultrastructural and immunohistochemical features of epithelial but not synovial differentiation [1]. Today it is accepted that synovial sarcomas are derived from unknown multipotent stem cells that are capable of differentiating into mesenchymal and/or epithelial structures.

On the basis of histopathological appearance, synovial sarcomas are usually divided into three subtypes: biphasic, monophasic, and poorly differentiated tumours [1]. Biphasic synovial sarcomas (BSS) are composed of two morphologically different cell types, epithelial and spindle cells, which vary in distribution, the latter being the larger component [3]. In contrast to BSS, monophasic synovial sarcoma (MSS) constitute only of spindle cells and is therefore morphologically similar to other spindle cell tumours such as fibrosarcomas.

Poorly differentiated synovial sarcomas (PDSS) encompass oval or spindle-shaped cells of small size, which look intermediate in appearance between epithelial and spindle cells [1]. Synovial sarcomas are often difficult to diagnose purely on histological and clinical grounds. In many cases, only with the aid of ultrastructural, immunohistochemical, or genetic studies is it possible to recognize these malignancies clearly. This is especially for MSS cases, the most frequent histological subtype, which could be misdiagnosed for spindle cell sarcomas, e.g., fibrosarcoma, leiomyosarcoma, malignant peripheral nerve sheath tumour (MPNST), hemangiopericytoma, or malignant fibrous histiocytoma [2].

Several studies have demonstrated that immunohistochemistry may be of help in the diagnosis of MSS since these tumours are generally positive for epithelial markers (e.g., cytokeratins and EMA) that are mostly absent in other soft-tissue sarcomas such as fibrosarcomas [3, 5]. Moreover, MSS cases are usually negative for muscle-associated markers (e.g., desmin and smooth-muscle actin), allowing distinction from leiomyosarcoma, and infrequently express S100 protein, which is present in the majority of MPNST cases [4, 5] PDSS may also be difficult to differentiate from other soft-tissue tumours, especially peripheral neuroectodermal and high-grade MPNST tumours. A recent

study indicates that PDSS may be immunohistochemically distinguishable from the former tumours based on the expression of the markers CD56 and CD99 and high-molecular-weight cytokeratins [3]. In contrast to other histological subtypes, BSS cases are clearly identifiable due to their characteristic biphasic morphology, which includes glandular or solid epithelial structures containing cuboidal or columnar cells, intermixed with a spindle cell component formed by densely packed elongated cells [4, 5].

Recent studies have shown that specific patient, tumour, and treatment factors influence the prognoses of synovial sarcoma patients. For example, young patient age, smaller tumour size, massive tumour calcification, numerous intratumoural mast cells, and distal location have all been reported to be favorable prognostic features [3]. In addition, poorly differentiated histology, tumour necrosis, vascular invasion, high mitotic rate, high proliferative index, DNA aneuploidy, and certain molecular genetic features have all been reported to be adverse prognostic factors [3]. Recent studies have claimed that adequate surgical margins and adjunctive chemotherapy and radiation therapy have improved prognosis compared with older series [2]. Unfortunately, many of the previous studies were too small to be subjected to multivariate statistical analysis.

Tumour size also strongly correlated with the outcome with the reason being; larger size suggests later tumour detection, may indicate rapid tumour proliferation, often correlates with a proximal location that would accommodate a larger tumour, and may cause more difficulty in achieving adequate surgical margins. Other studies of synovial sarcoma have also shown that tumour size is an independent prognostic factor for survival. The estimated 5-year survival for patients with tumours 5 cm was nearly 90%, compared with 40% for patients with tumours >5 cm. Distal tumour location has also been reported to be a favorable prognostic factor for patients with many different soft tissue sarcomas, including synovial sarcoma. The current standard treatment is wide resection followed by polychemotherapy with or without irradiation. Regional lymph nodes also should be removed. Neoadjuvant chemotherapy is a matter of debate. Initial surgical treatment with adequate surgical margins by surgeons experienced with sarcomas, preferably at specialized centers, should be considered to improve local control, outcome, and survival.

CONCLUSION

This report highlights the need for early detection and awareness of the referral of lumps and bumps to an orthopaedic oncologist. Late presentation very often leads to difficulties in management and physical outcomes. Younger patients with smaller tumours that are more distal in location have shown to have better prognosis. Wide resection with polychemotherapy with or without irradiation is the gold standard for treatment.

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