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EDITORIAL NOTE

Dear Authors / Researchers / Readers,

Welcome to the 6th Edition of Manipal Alumni Science & Health (MASH) Journal.

Manipal Alumni Association of Malaysia (MAAM) is publishing the 6th 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

Malposition Of Hemodialysis Catheter: Double Superior Vena Cava

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Key Words: Persistent Left Superior Vena Cava, Haemodialysis

ABSTRACT

Central venous catheter placement is a common procedure for physicians and interventional nephrologists. Left persistent superior vena cava (PLSVC) is an uncommon venous anomaly accounts for 0.3% to 0.5% of individuals in the general population; due to the failure of left anterior cardinal vein to regress during embryonic life. We described a regular hemodialysis patient with PLSVC that discovered incidentally after jugular vein catheterization. Patient was asymptomatic and the catheter was successfully used for hemodialysis. This case highlighted the importance on recognition of anatomical variation of the cervico-thoracic vessels to prevent unnecessary complications.

INTRODUCTION

Anatomical variation of superior vena cava is usually detected incidentally following central venous catheter insertion, cardiac devices implantation, during cardiopulmonary surgery or cardiovascular imaging. Patients with persistent left superior vena cava (PLSVC) are usually asymptomatic. Thus the diagnosis is usually made incidentally following central venous catheter insertion via the internal jugular vein or subclavian vein approach. PLSVC is a rare vascular anomaly occurring in 0.3% to 0.5% [1-4] in the general population and 1.3-4.5% in patients with cardiac congenital abnormalities [2-5]. It is due to the persistent patency of the left cardinal vein that usually degenerates during early fetal life. PLSVC usually drains into the right atrium via the coronary sinus in the absence of congenital heart disease. Knowledge of anatomical anomaly of thoracic great vessels is important to avoid complications during central venous catheterization. Serious complications such as cardiac arrhythmia, cardiogenic shock, angina and cardiac arrest have been described during catheterisation

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in patients with a PLSVC. The superior vena cava anatomical anomaly should be suspected when there is difficulty on central venous catheterization via the subclavian or internal jugular vein [6]. We described a case of PLSVC in an end-stage renal disease patient that detected incidentally after placement of haemodialysis catheter.

CASE PRESENTATION

A 45 years old lady, an end-stage renal disease patient on regular haemodialysis, was admitted to the ward with swelling and pain over the right arteriovenous fistula (AVF) for three days associated with fever. She was treated for fistula site infection and was started on intravenous ceftriaxone and required temporary rest of the fistula. A double lumen uncuffed hemodialysis catheter was inserted under ultrasound guidance through the left internal jugular vein (IJV) approach. The procedure was uneventful. Chest radiograph post procedure revealed an unusual position of the catheter tip at the left mediastinum (Figure 1). The catheter blood flows from both lumens, were good, and blood gas analysis revealed venous blood. Images from the computed tomography of the thorax (Figure 2a & 2b) revealed the presence of right and left superior vena cava. The dialysis catheter was used for hemodialysis without any complications.

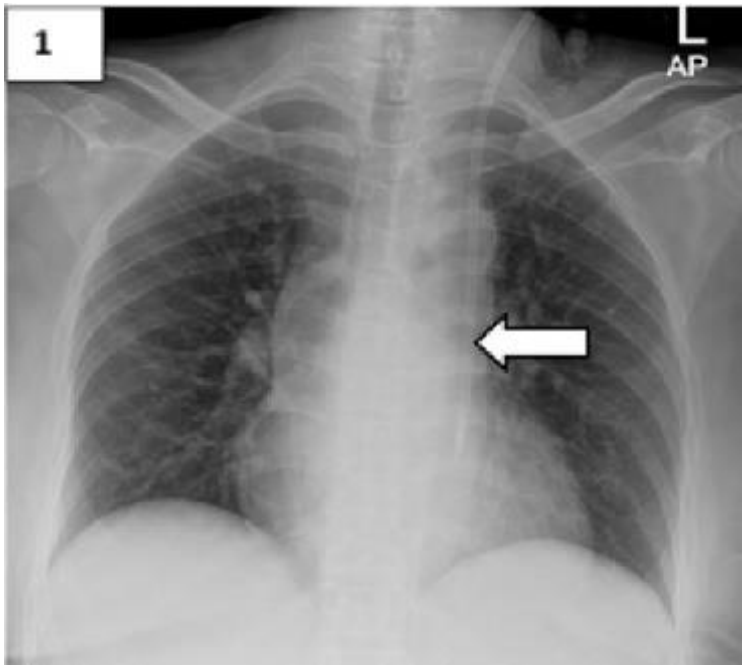

Figure 1: Chest radiograph revealed the position of the catheter tip on the left mediastinum (white arrow)

Figure 2a & 2b: CT thorax shown the presence of persistent left superior vena cava (grey arrow)

DISCUSSION

The congenital thoracic venous anomaly is very rare. The commonest congenital thoracic venous anatomical variation is persistent left superior vena cava (PLSVC) with the incidence of 0.3-0.5% in general populations [1-4]. Approximately 1.3-4.5% of these patients have associated congenital cardiac abnormalities such as atrial septal defect, bicuspid aortic valves, coarctation of the aorta or ostial atresia [2-5]. During the eighth week of embryo life, an anastomosis is formed between right and left anterior cardinal veins resulting in the innominate or brachiocephalic vein. The proximal part of anterior cardinal veins will form the internal jugular veins whereas the distal portion of right anterior vein forms the normal right-sided superior vena cava. The portion of the left anterior cardinal vein is normally degenerate to become "ligament of Marshall" [4, 7]. If there is a failure of the regression of the left anterior cardinal vein, a congenital malformation of the patent left anterior cardiac vein which later forms the persistent left superior vena cava that drains into the coronary sinus and subsequently into the right atrium.

PLSVC drains into the right atrium via coronary sinus in approximately 90% of cases without hemodynamic consequences. The remaining of patients without coronary sinus, it drains into left atrium causing left to right shunt. The most common variation of PLSVC is the presence of right and left-sided superior vena cava. Other uncommon types are the absence of right superior vena cava with PLSVC and the small or absent left brachiocephalic vein.

In our case, the patient has double (left & right) superior vena cava and she is asymptomatic. An abnormal location of dialysis catheter was detected incidentally on chest radiograph post internal jugular vein catheterization. The chest radiograph revealed the dialysis catheter tip in the left mediastinum, which was unusual as it is expected to cross the midline and lie on the right mediastinum. Placement of a catheter

into PLSVC commonly misinterpreted as malposition of the catheter into the arterial system such as a subclavian or carotid artery, aorta, internal thoracic vein or mediastinum [4, 8, 9]. Blood gas analysis is a useful test to confirm the placement of a catheter into the arterial or venous system. Diagnostic tests that are useful for confirmation of the catheter location in PLSVC are catheterogram, central venogram, agitated saline test and computed tomography [10, 11]. In some cases, echocardiogram shows dilated coronary sinus and a chest radiograph may reveal widening mediastinum with prominent aortic arch shadow [11, 12].

The right internal jugular vein is the commonly preferred site for central venous catheter insertion as compared to the femoral vein approach which has a higher risk of catheter-related bloodstream infection (CRBSI) [9]. Left internal jugular vein approach is also not an uncommon site of venous catheterization especially in cases of multiple failed attempts on the right internal jugular vein, or right-sided central venous occlusion.

In conclusion, clinicians should be aware of the existence of PLSVC as congenital venous anomaly especially when there is difficulty on catheterization via the left subclavian or internal jugular vein. It may prevent possible complications such as cardiac arrhythmia, shock, angina or cardiac arrest or vessel wall injury. Recognition of PLSVC can also prevent misinterpretation of the catheter position on chest radiograph thus avoiding unnecessary removal of the catheter.

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DECLARATIONS OF CONFLICTING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

CONSENT FOR PUBLICATIONS

Written informed consent was obtained from the patient for publication of this case report including publications of images.

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The Outcome Of A Carbapenem Stewardship Initiative In A Local Tertiary Teaching Hospital

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ABSTRACT

Carbapenem-resistant isolates have been increasingly reported recently. Carbapenem stewardship is designed to optimize its usage particularly among medical wards with high prevalence of carbapenem prescriptions to combat such emerging resistance. Carbapenem stewardship programmes (CSP) can reduce antibiotic use but clinical outcome of such measures needs further evaluation. We examined this in a prospective manner using feedback mechanism. Our single-center prospective cohort study involved all carbapenem prescriptions across the medical wards (including medical patients admitted to intensive care unit) in a tertiary university hospital setting. The impact of such stewardship was analysed according to the accepted and the rejected groups. The primary endpoint was safety. Safety measure applied in this study was death at Day 30. Secondary endpoints included readmission at day 30, and length of hospitalisation. Over the 19 months' period, input from 144 carbapenem prescriptions was analysed on the basis of acceptance of our CSP recommendations on the use of carbapenem. Recommendations made were as follows: de-escalation of carbapenem; stopping the carbapenem; use for a short duration of 5-7 days; prolonging up to 2 weeks in the case of carbapenem-sensitive Extended Spectrum Beta-Lactamases bacteremia; dose adjustment; and surgical intervention for removal of septic foci. Acceptance rate was 53%. Those who accepted CSP recommendations had no increase in mortality ($p = 0.07$), had a shorter length of hospital stay (LOS) by 6 days and had less readmission rates. Carbapenem stewardship program in the medical wards is safe and does not

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harm the patients with added benefits of reducing the length of hospital stay. However, more time is needed to engage the primary clinical teams by formal clinical presentation and immediate personal feedback by senior Infectious Disease (ID) personnel to increase its acceptance.

INTRODUCTION

In the recent years, the increased use of carbapenem in treating wide spectrum of infectious diseases has raised concern over the potential emergence of carbapenem resistance. Thus, good antibiotic stewardship is essential to optimise the effectiveness of carbapenem use, minimise the toxicity and healthcare cost as well as to limit the emergence resistance[1]. A Singaporean prospective study has demonstrated the usefulness in reducing carbapenem usage and readmission rates. There was no statistical significant change in appropriateness ($p = 0.357$), length of hospital stay ($p = 0.10$), and mortality rates ($p = 0.57$)[2].

Local data has been scarce especially among the teaching hospitals. Carbapenem stewardship was started by an infectious disease physician in 2011 (August) in UKMMC. It involved once weekly table round (every Thursday). Interventions in the form of recommendations included de-escalation, shortening the carbapenem, stopping the carbapenem, and dose adjustment. In 2013, cases started to be posted to "WhatsApp" with patient's particulars, clinical presentation, relevant lab finding, within chat group called "AB Stewards". According to s.40 of the Malaysia Personal Data Protection Act 2010, the processing of such sensitive personal data was allowed for medical purposes provided it was done by a healthcare professional. The acceptance rates ranged from 70 % to 80% (82.5% in 2013, 73.9% in 2014 and 82% in 2015). However, clinical outcomes were not vigorously studied at that time and no published data was available.
Our primary objective was to look at the survival benefit outcome at Day 30 for those involved in this carbapenem stewardship initiative. Our secondary objectives were to compare the outcome of carbapenem stewardship initiative at Day 30 with the following outcomes:-

(a) still in ward;
(b) any readmission? (whether infection-related);
(c) any death (infection-related and non-infection-related)?
(d) any discharge?
(e) length of stay (LOS)

Note: The safety outcomes at 30th day was traced by making the phone call to the respective patients and/or families (if patient has been discharged from the hospital). In the events of readmission to other hospitals, outcomes were traced by calling the respective hospitals or patients/families.

MATERIALS AND METHODS

This was a single centre prospective cohort study conducted in a teaching hospital in Malaysia by the principal investigator (junior medical registrar) along with the help of the pharmacists. The target subjects consisted of all adult patients from a total of seven adult medical wards (a total of 196 beds) and one adult general intensive care unit (only for those under medical team as primary team). The sampling method was in a non-probability manner. The extent of study period was 19 months (July 1, 2015 to January 26, 2017). Those aged 13 years old and above, within one to four days of initiation of carbapenem (including public holidays) were included. The information of these patients at baseline was broadly divided according to the demographic features and clinical features/risk factors.

The minimum sample size required was determined via the following formula:

$$\left(\frac{Z}{MOE}\right)^2 P(1-P)$$

Z= Z value corresponding to the desired confidence interval level; P = Estimated prevalence of the studied population; MOE= Desired margin of error

$$\left(\frac{1.96}{0.05}\right)^2 0.1(0.9)$$

= 138 sample size

All carbapenem cases are identified via three major routes: case note review; pharmacy's system; and pharmacist's notification. For the case note review, the investigator searched in the above wards for cases involving carbapenem prescriptions, depending on the time availability. For the pharmacy's system, the investigator went to the pharmacist's main office to trace the submitted carbapenem prescription forms signed by the respective attending physicians and went to the respective wards to do the stewardship. For the pharmacist's notification, the designated pharmacists of all these medical wards will notify via the electronic notification (i.e. "WhatsApp" application) on the patient's initiation on carbapenem. The feedback form (as shown in Appendix) will be immediately attached to the respective bedside case note, within the 4 days of initiation of carbapenem. The sampling method used was the convenience sampling (nonprobability) due to the limited manpower and time.

Strategy employed in this trial was the audit and feedback mechanism. The indication and inappropriateness of carbapenem usages were judged by the principal investigator alone to ensure data homogeneity using an established set of recommendations. The recommendations encompassed the de-escalation of carbapenem; stopping the carbapenem; use for a short duration of 5-7 days; longer duration (up to 2 weeks) in the case of carbapenem-sensitive Extended Spectrum Beta-Lactamases bacteremia (preliminary culture results were included); the dose adjustment; as well as the surgical intervention for removal of septic foci. The feedback was mainly done in the written form. Whenever possible, the verbal communication was made to the respective medical officer/registrar in charge of the patient. Subsequently, the responses from physician/registrar in charge (accept/reject) within a period of 4 days and at 2 weeks (from the time of initiation) were recorded (if fell on weekend). The data was then compiled and analysed. Cases were reviewed within 4 days of recommendations (if fell on weekend, will be reviewed the next working days). Next review will be 2 weeks from the time of carbapenem initiation due to the limited manpower.

Such data collection had been commenced upon approval of the survey by the Ethics Committee. Finally, the pooled data was analysed applying the SPSS statistical software. P-value of less than 0.05 will be considered as statistically significant in this research.

DEFINITION OF TERMINOLOGIES

Readmission refers to the hosptalization that occurs within 30 days after a discharge (either to UKMMC or to other hospitals).[3-4] Death refers to the mortality during the hospitalisation or within 30 days of the date of discharge. Cause of death in our study was based on the death certificate and/or discharge summary of the relevant patients. Infection-related death was based on the written primary diagnosis of infection (for instance urosepsis), either obtained from the case note or from the death certificate. [5]

The co-morbidities implied in this research encompassed the following :[6] Renal impairment refers to the creatinine level of more than 133 umol/L or doubling of baseline serum creatinine if known[7] (normal range = 62-133 umol/L). Acute liver dysfunction refers to the serum bilirubin level of more than 51umol/l, prothrombin time of more than 60% above normal and a two-fold increase of transaminase level.[8]

Chronic lung disease refers to the disease diagnosed within 1 year prior to admission, for instance, bronchial asthma, chronic obstructive lung disease and lung fibrosis. Diabetes mellitus refers to the fasting blood sugar level of more than 7 mmol/l [9] either in the presence or absence of the oral anti-diabetic agent, or refers to the insulin-dependent patients.

Malignancy in this manuscript was based on the histological diagnosis either in the past or present.

Corticosteroid therapy refers to the dose of 20 mg prednisolone daily for at least two weeks or 30 mg prednisolone daily for at least one week before the positive blood culture.[10]

Neutropenia refers to the absolute neutrophil count of less than 2.5 x 10^6/L. Coagulopathy refers to the thrombocytopenia with a platelet count 100x10 ^{6} /ml, ± a prolonged prothrombin time ±activated partial thromboplastin time more than 80% ± a positive D-Dimer of 1/8 dilution.[11]

RESULTS

A total number of one hundred and forty six patients were identified during the study period. Only two patients were excluded as they discharged at own risk at second day of carbapenem initiation for second opinion. This comprised 51% males (n= 74) and 49% females (n = 70). More than half of them were Malays (63%), followed by Chinese (22%) and India (12%). The other 3% were from the indigenous group and the rest were foreigners (Sudan and Myanmar). Among all these one hundred and forty four patients that were reviewed, the attending physicians only accepted recommendations made to the seventy six patients (53%). The recommendations made to the remaining sixty eight patients were rejected by the attending physician (47%). The baseline characteristics differentiating between the accepted group and the rejected group were as summarized below in Table 1:-

BASELINE CHARACTERISTICS				
Variables	All, n (%)	Accepted Group, n (%)	Rejected Group, n (%)	p Value
Gender				
Male	74 (51.4)	40 (54.1)	34 (45.9)	0.88
Female	70 (48.6)	36 (51.4)	34 (48.6)	
Age	Mean age of 60 +/- 18 years old	Mean age of 57 +/- 19 years old	Mean age of 64 +/- 16 years old	0.02
Number of Co-morbids				
0	17 (11.8)	11 (64.7)	6 (35.3)	Reference Category
1	37 (25.7)	19 (51.4)	18 (48.6)	0.53
2	22 (15.3)	12 (54.5)	10 (45.5)	0.76
> 2	68 (47.2)	34 (50.0)	34 (50.0)	0.41
Nursing Home Residents				
Yes	6 (4.2)	3 (50.0)	3 (50.0)	0.89
No	138 (95.8)	73 (52.9)	65 (47.1)	
Chronic Lung Disease				

Present	22 (15.3)	13 (59.1)	9 (40.9)	0.68
Absent	122 (84.7)	63 (51.6)	59 (48.4)	
Acute Liver Dysfunction				
Exist	9 (6.0)	5 (55.6)	4 (44.4)	0.86
Not	135 (94.0)	71 (52.6)	64 (47.4)	
Coagulopathy				
Present	11 (7.6)	6 (54.5)	5 (45.5)	0.90
Absent	133 (92.4)	70 (52.6)	63 (47.4)	
Renal Impairment				
Yes	61 (42.4)	31 (50.8)	30 (49.2)	0.81
No	83 (57.6)	45 (54.2)	38 (45.8)	
Diabetes				
Yes	66 (45.8)	34 (51.5)	32(48.5)	0.91
No	78 (54.2)	42 (53.8)	36 (46.2)	
Neutropenia				
Exist	10 (6.9)	6 (60.0)	4 (40.0)	0.88
Not	134 (93.1)	70 (52.2)	64 (47.8)	
Malignancy				
Yes	Yes	40 (54.1)	34 (45.9)	0.88
No	No	36 (51.4)	34 (48.6)	
On Chemotherapy				
Yes	11 (7.6)	6 (54.5)	5 (45.5)	0.90
No	133 (92.4)	70 (52.6)	63 (47.4)	
Steroid Use ?				
Yes	8 (5.6)	4 (50.0)	4 (50.0)	0.87
No	136 (94.4)	72 (52.9)	64 (47.1)	

Table 1 : Baseline Variables of Studied Population (Comparison between Cases of Acceptance vs Rejection during Carbapenem Stewardship)

The Table 1 above summarized the similarity in the variables among the accepted group versus rejected group except for the age group (p value > 0.05). Further sub-analysis among the acceptance cases revealed that 53 cases accepted de-escalation (36.81%), 28 cases (19.44%) accepted to use carbapenem for a short duration of 5-7 days, 29 cases (20.14%) used longer duration of carbapenem due to the presence of carbapenem-sensitive Extended Spectrum Beta-Lactamases (ESBL) bacteremia, 32 cases (22.22%) agreed to stop the carbapenem as they were deemed not indicated, and 1 case (0.69%) agreed to adjust the dose of carbapenem (dose reduction for renal adjustment).

Majority of the recommendations were for de-escalation. Among all these cases that refused de-escalation of carbapenem (n = 39), 41% were found to be still in the ward at 30 days. Among all these cases that rejected to de-escalation of carbapenem (n = 39), 41% (16/39 x 100%) was found to be still in the ward at 30 days. The readmission and the infection-related death were noted to higher among those rejected group versus those accepted group, however, the numbers were too small to determine its statistical significance. In those group who accepted to stop the carbapenem, there was no significant difference in the outcomes (i.e. still in ward; readmission; death; discharged). Meanwhile, all the patients (n = 15), whom the carbapenem's duration was shortened according to the recommendation, was 'discharged' when they were reviewed at day 30 ($p < 0.01$). Although the number of readmission was higher among those accepted to continue carbapenem in the case of carbapenem-sensitive ESBL bacteremia, the number (n = 4) was too small to make any statistical conclusion. The readmissions from this group of patients were mainly non infection-related (only 1 case was infection-related but culture negative and the patient was ill).

In the current study, there was neutral survival benefit noted at Day 30 in the recommendations accepted group. A total of seventy four patients in the accepted group as compared to the sixty patients in the rejected group were alive at day 30 ($p = 0.07$). Only two deaths were reported in the accepted group as compared to eight deaths in the rejected group (Table 2).

Several other secondary outcomes had also been identified and outlined below (Table 2) :

Endpoints	Accepted Group n (%)	Rejected Group n (%)	Significance Level, *p*
still in ward	2 (9.1)	20 (90.9)	*p–value <0.01*
30 day readmission	7 (38.9)	11 (61.1)	*Unable to determine the p-value due to small sample sizes*
30 day mortality due to infection	1 (11.1)	8 (88.9)	
30 day mortality not due to infection	1 (100.0)	0 (0.0)	
discharged well	65 (69.1)	29 (30.9)	*p–value < 0.01*
length of stay (LOS)	15.6 ± 7.9 days	21.7 ± 7.5 days	*t value = 4.67, p-value 0.00001 (<0.01)*

Table 2 : Various Secondary Outcomes's Analysis Across the Medical Wards (at 30th day)

DISCUSSIONS

This project has been designed to optimize the carbapenem's prescriptions among our medical wards and ICU medical patients. The medical discipline was chosen due to its high prevalence of such prescription. To our best knowledge, this is the first locally conducted prospective carbapenem-only stewardship project in a university's teaching hospital setting. The core recommendation in our study was based on the prospective audit and feedback strategy as conformed to the guideline set forth in the Infectious Diseases Society of America (IDSA) [12].

Apart from that, the overall acceptance rate of our study was 53%. Table 3 summarized comparisons of acceptance rate among several worldwide studies in terms of methodologies, and interventions for the antibiotic stewardship. The feedback mechanisms of oral recommendations or phone call or direct verbal contact either in French studies or the Singapore study did result in higher acceptance rates (80-90% in French studies and 68% in the Singapore study). Expertise from the infectious disease specialty does play a role to improve the acceptance rate as well, which could possibly explain the higher acceptance rates. One of the obvious observations among all these studies was the involvement of infectious disease specialists in the stewardship program. The prescription review of once weekly in the French study in 2009 might have also allowed non-indicated antibiotic usage to be prolonged for at least 6 days and thus higher acceptance rate.

	Lesprit P, et al (2009) (French) [13]	*Lesprit P, et al (2011) (French)* [14]	*Cosgrove SE, et al (2012) (USA)* [15]	*Lew YX, et al (2015) (Singapore)* [16]	Our Study
Acceptance Rate	80%	90%	66.7%	68%	53%
Nature of Study	Prospective	Prospective	Prospective	Retrospective	Prospective
Frequency of Prescription Review	Prescription review only at day 6	Daily review	Review after 48 hours	Ward pharmacists and Antibiotic Stewardship Programme (ASP) team review the patients from Day 3 of carbapenem use	Prescription review on day 1 itself
Team Member	1 infectious disease	1 full-time infectious	Infectious disease	4 infectious disease	1 general internal

	specialist who provides advice on an on-call basis	disease specialist on an on-call basis	physicians	physicians on rotation (making up 0.5 full-time equivalents daily) and 3 ASP pharmacists	medicine master student
Feedback Mechanism	Recommend-ations to modify the antibiotic regimen were provided orally to the attending physician when appropriate, or were written in the medical chart when direct oral interaction could not occur	Attending physician was called by phone or visited by the infectious disease specialist	The provider was contacted in inappropriate cases	Communicat-ed to the primary care team via documentati-on in the patient's chart and frequently include telephone or in-person discussions	Mainly via documentation in the patient's chart. Direct contact only when possible (limited manpower)
Educational Sessions	Every 6 months, all staff and junior physicians of each ward received education about antibiotic prescribing	Every 6 months, all staff and junior physicians of each ward received education about antibiotic prescribing	None	None	Every 6 to 12 months to master students

Table 3: Antibiotic stewardship studies. Comparisons between our centre and other studies in terms of methodologies, interventions and the acceptance rates for the antibiotic stewardship.

Thus, efforts should be exercised upon increasing the awareness of carbapenem stewardship program, as well as strengthening the educational program on carbapenem stewardship, including continuous medical education (CME), training courses on carbapenem stewardship, and incorporation of such program into the undergraduate medical school curricula. Behavioural change of reluctance to de-escalating antibiotic with the presumption of responding to carbapenem is also something important to be addressed. This is so-called the "physician inertia".

However, as a whole, our study achieved the primary endpoint that carbapenem stewardship is safe. Recommendations in our stewardship project did not influence on the mortality rate. In fact, accepted group had better survival rate although it was not statistically significant. This neutral impact had been demonstrated in several other previous studies[15-18]. On the other hand, the 30-day mortality due to infection was relatively lower in the cases which recommendation was accepted even though the size was too small to be proven statistically. Another positive secondary outcome derived from this study was that of shorter mean hospital stay. This had also been consistently shown in three other studies as well[15-16, 19-20]. This shortening of hospital stay could then be transformed into cost-saving later.

There were a few limitations of our research. Firstly, the sample size was small. Larger samples would have allowed us to have smaller margin of error and to augment the power of the study. Secondly, our current feedback mechanism suffers from the possibilities of not being reviewed in a timely manner or even being ignored. This mechanism may need to be strengthened in the future by engaging directly with the primary team via measures such as direct and immediate verbal feedback; immediate "WhatsApp" to the respective treating physician; designated time for feedback; setting up of pop-ups for lists of inappropriate cases in respective ward's computer; engagement of nurse practitioners and assistants. Thirdly, the method design of reviewing the carbapenem at 2 weeks after the last review at day 4 due to limited manpower. Lastly, the culture of hierarchy and autonomy may have limited our acceptance rate due to the current study was purely run by me as a junior medical registrar for which the recommendations in the carbapenem stewardship could well be ignored by senior highly experienced primary team's physicians. This study again argues the case for a full time infectious disease physician and/or full time infectious disease pharmacist to be involved actively together with like-mindedness senior hospital staff in the stewardship team to help increase the acceptance rate and to conduct meaningful clinical research.

CONCLUSIONS

In conclusion, carbapenem stewardship in the medical patients is safe with added benefits of reducing hospital stay. Acceptance rate was at 53% which may be due to the issues with audit and feedback mechanisms and also lack of confidence with relatively junior staff and on the perception of "just to complete the course as the patient improved" (physician inertia). It underlines a golden opportunity for us to intervene early by creating awareness about the emerging carbapenem-resistant strains and at the same time reassuring them about the safety of compliance to carbapenem

stewardship program, at least in terms of the mortality and the duration of hospital stay. Further studies are required to involve wards of other disciplines to probe into other potential benefits of such stewardship and to develop interventions that are user-friendly.

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Nil

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REVIEW

Ancient Thought And Doses Of Medicinal Plants: A Review

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Key Words: Medicinal Plant, Traditional Medicine, Herbal, Ayurvedic, Ancient Thought, Tribe, Dose

ABSTRACT

Medicinal plants have a remarkable significance on human health. Not only in the world but also the Asian region is commonly famous for using these plants and medicines. Tribal people are not scanty in the world as a whole. From their core of belief, and for the availability of those plants, they use it in their most ailments. So-called herbal plants have no side effects if those collecting, processing, analyzing, and doses are scientific. Ethnobotany is a branch of medical science as its continuation with modern medicines needs to come out with further justification and clarification. In this regard, more scientific studies on medicinal plants should implement in all medical sectors.

INTRODUCTION

80% of the world population utilizes drugs derived from medicinal plants for their health. Africa, India, and other countries have enriched the floristic yielding of herbal drugs [1]. Around 30,000 plant species are known to have importance where 15,000 are recognized as drugs worldwide. Biodiversity exists in the earth with 8 broad realms and 193 biogeographic provinces [2]. Toxol (anti-cancer) drug derived from *Taxus baccata* was the first herbal drug, worth of million dollars. The use of traditional medicines in most developing countries has been widely observed [3]. According to WHO, health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. The global trade of medicinal plants in the US is $800 million per year [1]. Based on the current overall situation medicinal plants will continue to play an important role as a health aid [4]. These plants may have secondary metabolites like alkaloids, glycosides, steroids, or other groups of compounds which have marked pharmaceutical action as anti-cancer, anti-malarial, anti-diabetic, anti-dysenteric, etc.

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About 960 species of medicinal plants are estimated in trade of which 178 species have annual consumption levels over 100 metric tons. Modern pharmacopoeia still contains at least 25% of drugs derived from plants and many others which are synthetic analogues. There are estimated to be around 25,000 effective plant-based formulations, used in folk medicine and known to rural communities all over India and around 10,000 designed formulations. Cocaine, codeine, digitoxin, and quinine, in addition to morphine, are still in use [1]. The advanced level of modern drugs is replacing plants as the source of most medicinal agents in industrialized countries [5]. Ethnomedicine deals with medicines derived from plants, animals or minerals that are used in the treatment of various diseases based on indigenous pharmacopoeia, folklore and herbal charm [6]. Two fundamental strengths of applied ethnobotany are – perception of local people and local people are involved with practical follow-up [7]. Local people are fundamentally involved in all stages of research, so there is a better chance to 'buy-in' and more robust solutions [8]. Contemporary science has acknowledged their active action, and it has included modern pharmacotherapy, a range of drugs of plant origin, and used throughout the millennia [9]. Over 25% of prescribed medicines in industrialized countries derive directly or indirectly from medicinal plants [10]. The Discovery of drugs from plants has traditionally been time-consuming, so faster methods for plant collection, bioassay screening, isolation, and development of such compounds must be adopted [10]. Various antibiotics and their irrational use have contributed to the emergence of resistance and various side effects have developed among people [11]. Bangladesh is well known for the practice of traditional medicine and ethnopharmacology [12, 13, 14, 15, 16]. Traditional knowledge on medicinal plants in Bangladesh was limited to books and articles, though recently some articles are available whereas online books are not found [17]. India already has developed many medicinal plant databases. Besides, China also has established an online database for traditional Chinese medicine which includes the therapeutic uses for more than 6,000 Chinese medicinal plants [18-26]. In China, about 40% of the total medicinal consumption is attributed to traditional medicines [1]. The objective of this review is to understand the world status for using medicinal plants and enhance to culture it.

Uses in Tribal People

The utility of medicinal plants played an important role in Ayurveda, Unani, Siddha, and also in modern medicine. Jeevani (stimulant) and energy tonic was synthesized from *Trichopus zeylanicus* which became the first patent of tribes in India [1]. Poor families residing in the remote hilly areas are engaged in the collection of medicinal plants [1]. Chakma, Marma, Rakhine, Tipra, Garo, and Khashia are habituated to use many medicinal plants [11] (Table 1).

Identified Species

Emperor Shah Nung (2700 BC) mentioned 365 drugs in his book, and Aristotle (384-322 BC) enlisted more than 500 plants [1]. Carl Linnaeus (1732) recorded some medicinal remedies in his diary used by the Sami people [1]. Around 2,000 medicinal plants are available in this sub-continent where 449 are enlisted in Bangladesh [27]. A manually curated database mentions 1208 species of medicinal plants in Bangladesh. There are 5,000 plant species, of which approximately 1,500 are considered medicinal plants based on the literature survey [17]. Till now, 747 plants were enlisted as medicinally important [28]. Out of 500 species of medicinal plants in Bangladesh, about 250 species are significant for manufacturing traditional medicines. The majority number of these plants have not yet confirmed their bioactive compounds by chemical, pharmacological, and toxicological studies [29] (Table 1).

Cured Diseases

People use medicinal plants to treat various ailments based on indigenous knowledge passed to them generation after generation [30]. They use medicinal plants on the advice of wise men, herbalists, and traditional practitioners [30]. Men have used medicinal plants as their food and cure for various ailments [31]. Extracts of some plants are used as a molluscicide to control schistosomiasis [32]. Herbal medicines can be considered safe alternatives to modern drugs and used in some infectious diseases [11] (Table 1).

Table 1. Medicinal plants and their major uses

Name of plants	Family	Used parts	Specific activities
Rosary pea (*Abrus precatorius*)	Fabaceae	root, leaves, seed	hair tonic
Indian liquorice (*Glycyrrhiza glabra*)	Fabaceae	root, stolon	epilepsy, ulcers
Indigo plant (*Indigofera tinctoria*)	Fabaceae	root, fruit color	arsenic poisoning, hydrophobia, heart palpitation
Methi (*Trigonella foenumgracum*)	Fabaceae	seeds	enlargement of spleen and liver
Garlic (*Allium sativum*)	Liliaceae	bulbs	cough, facial palsy, hysteria, leprosy, piles, rheumatism, cardiac diseases
Indian aloe (*Aloe indica*)	Liliaceae	leaves juice	amenorrhoea, spleen disorder, jaundice, rectal fissure
Safed musli (*Chlorophytum borivilianum*)	Liliaceae	root	piles, tuberculosis, impotency, leucorrhoea
Periwrinkle (*Catharanthus*	Apocynaceae	whole plant	anti-cancerous

roseus)			
Rauwolfia (*Rauwolfia serpentine*)	Apocynaceae	dried roots	high blood pressure
Indian acalypha (*Acalypha indica*)	Euphorbiaceae	whole plant	rheumatoid arthritis, asthma
Rough chaff (*Achyranthes aspera*)	Amaranthaceae	whole plant	piles, toothache
Vasaka (*Adhatoda zeylonica*)	Acanthaceae	whole plant	asthma, bronchitis, leprosy, pulmonary problems
Neem (*Azadirachta indica*)	Meliaceae	bark, leaves	diabetes, jaundice, leprosy, liver complications, lumbago, rheumatism, urticaria
Indian sallaki (*Boswellia serrata*)	Burseraceae	gum	dysentery, snake bite, scorpion sting
Ephedra (*Ephedra gerardiana*)	Ephedraceae	dried young stem	urinary disorders, sinusitis, diphtheria
Black pepper (*Piper nigrum*)	Piperaceae	dried fruits	viral hepatitis
Heart-leaved moonseed plant (*Tinospora cordifolia*)	Menispermaceae	leaves, mature stem	kidney complaints
Indian heliotrope (*Heliotropium indicum*)	Boraginaceae	leaves	ophthalmic disorders, anti-tumour, leukemia
Shameplant (*Mimosa pudica*)	Mimosaceae	leaves	anti-venom activity

Source: [1]

Causes for Decreasing

In view of the growing population, anthropogenic activities, the plant wealth is eroding rapidly. As a result, many plants are becoming endemic and some might have been lost. Efforts have to be made to protect the loss through in-situ and ex-situ conservation strategies [1]. Human beings only have been mostly responsible for the destruction of habitats through intensive agricultural development, overexploitation of natural resources, urbanization, industrialization, deforestation, population and environmental degradation [33]. Medicinal plants suffer overexploitation, extinction, adulteration, unhealthy processing, storage problems, identification and marketing [1].

Organic Farming

Organic farming with medicinal plants may give solutions to get pesticide-free, nutritious, quality food and this farming keeps us away from junk food which bring us back to our rich traditional food [34].

Concluding Remarks

From the human civilizations, traditional medicines were the only treatment for various diseases. Those plants were available in nature. People could identify those beneficial plants delve into ethnobotany or ethnomedicine. In this modern world, many countries are using significant doses of these drugs. Overpopulation is beset with urbanization and is a common threat to these plants. We can culture medicinal plants in any gardens or nurseries. In the meantime, many plants have consisted of medicinal plants with their mode of action on humans. After growing those plants in the gardens, the herbal pharmaceutical industry can produce medicines for human welfare.

Table 2. Studied medicinal plants on human welfare

Features	Examples	References
World statistics	Medicinal plants have great impact in the world's record	Vartak & Madhav, 1980; Khoshoo, 1990; Chopra *et al.,* 1996; UNESCO, 1996; Hoareau & Dasilva, 1999; Jain & Mudgal, 1999; Arulrayan *et al.,* 2007; Polur *et al.,* 2011; Chen, 2011; Petrovska, 2012; Ashfaq *et al.,* 2013; Xui *et al.,* 2013; Mamoharachary & Rajithasri, 2014; Islam *et al.,* 2015; Pathania *et al.,* 2015; Manoharachary & Nagaraju, 2016; Mumtaz *et al.,* 2016; Zhang et al., 2017; Bardhan *et al.,* 2018; Mohanraj *et al.,* 2018
Bangladesh statistics	Bangladesh is well-known for its culture	Uddin *et al.,* 2014; Uddin *et al.,* 2016; Uddin *et al.,* 2017; Uddin, 2019; Uddin *et al.,* 2019
Tribal people	This is very ancient practice among people of the world	Manoharachary & Nagaraju, 2016; Bardhan *et al.,* 2018
Identified species	Identified medicinal plants are remarkable at all	Manoharachary & Nagaraju, 2016; Ghani 1998, 2003
Cured diseases	Many common or severe diseases, these plants are helpful	Anonymous, 1948-1976; Manilal, 1989; Lemma, 1991; Manoharachary & Nagaraju, 2016; Bardhan *et al.,* 2018
Causes for decreasing	Human activities are the root cause for decreasing of these plants	Pande, 2014; Manoharachary & Nagaraju, 2016
Organic farming	For avoiding such adulteration, this plants are healthy for living body	Biradar, 2015

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CASE REPORT

Intestinal Pseudo-Obstruction With Ureterohydronephrosis As A Complication Of Lupus.

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Key words: Intestinal pseudo-obstruction; systemic lupus erythematosus; smooth muscle; case-based education

ABSTRACT

We report the case of a 35-year--old lady followed-up at our Rheumatology unit for a 9-year history of lupus nephritis, who presented with recurrent abdominal pain and diarrhoea for the past nine months. The abdominal radiograph showed dilated small bowel, while computed tomography scan showed diffuse thickening of large and small bowels. Bilateral uretero-hydronephrosis without any evidence of obstructive uropathy was present on imaging. Ileocolic resection was done for presumed intestinal obstruction and the ileocolic biopsy did not reveal any granuloma, malignancy or vasculitis except for non-specific inflammation of cecum. Oesophagoduodenoscopy and colonoscopy were offered in view of persistent unexplained loose stools and abdominal pain. Multiple biopsy specimens of the small and large bowels did not show any remarkable findings. Second relook of the initial hemicolectomy specimen with special actin immunostain on the smooth muscle revealed degenerative changes of the muscularis propria. Intestinal pseudo-obstruction was diagnosed. Smooth muscle dysmotility could be the underlying pathology of this patient presentation. The patient responded well to intravenous immunoglobulin. It is potentially reversible with prompt recognition. Long term prognosis of this rare entity is, however, varying.

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INTRODUCTION

Chronic diarrhoea is defined as loose stools; increase in stool frequency or urgency for a duration of more than 4 weeks [1]. It is a very common problem affecting about 5% of the population from all walks of life. Most people choose to ignore the symptom unless it is associated with other cluster of red-flag symptoms which includes bleeding, weight loss, and frequent abdominal pain or accompanied with other systemic diseases. Having said so, the differential diagnoses of chronic diarrhoea are broad, including irritable bowel syndrome, diet- or drug-related, inflammatory bowel disease, neoplasia, endocrine-related or post-surgical related and the list goes on [2-3].

Here, we reported a case of intestinal pseudo-obstruction in a lady with Systemic Lupus Erythematosus (SLE) who had a right hemicolectomy done previously during her first presentation, however, continued to have unresolved intermittent abdominal pain and unremitting episodes of diarrhoea for 10 months. She had undergone multiple serial CT imaging as well as lower endoscopy before she was diagnosed and treated for intestinal pseudo-obstruction. Although this is a rare case, it is highly important not to be missed for the benefit of the patients per se.

Chronic intestinal pseudo-obstruction denotes recurrent or continuous symptoms and signs of intestinal obstruction but there is no obstructing mass or structure that can be detected. The symptoms of intestinal pseudo-obstruction are non-specific and may vary in presentation and severity. If undiagnosed, patients with this condition may suffer from bacterial infections, malnutrition, and muscle problems in other parts of the body such as the urinary bladder. Thus, chronic intestinal pseudo-obstruction needs to be considered as one of the differential diagnoses in debilitating chronic diarrhoea especially when there are concomitant underlying systemic illnesses, especially autoimmune related.

CASE PRESENTATION

A 35-year-old lady had been diagnosed with SLE in 2012 when she presented to a private hospital with cutaneous involvement, alopecia, arthritis, presence of antinuclear antibodies with the positive search for ds-DNA antibodies. She then had visited different hospitals and defaulted treatment subsequently. She had SLE flare in 2014 and was diagnosed with lupus nephritis treated with steroid, mycophenolate mofetil (MMF) and cyclosporine that were interrupted a few months later due to non-compliance and frequent bouts of infection requiring hospitalisation. She was initiated on regular haemodialysis in August 2019 as a result of disease progression from lupus nephritis.

In March 2020, she developed acute abdominal pain and distension associated with vomiting and diarrhoea for two weeks. The distension occurred few hours post-prandial and was relieved by a bowel movement. She was stressed with her erratic bowel habits, more than 10 times a day with minimal stool admixed with mucous but no blood seen. She

denied any constitutional symptoms or nocturnal diarrhoea. She presented with no clinical signs of lupus activity. At that time, her SLE medication consisted of prednisolone 7.5mg daily which was at tapering down regime. Per abdominal examination revealed moderate ascites without any organomegaly.

An abdominal CT scan revealed moderate ascites with small bowel dilatation with segments of mural thickening. Due to persistent severe abdominal pain with features suspicious of intestinal obstruction, exploratory laparotomy with a right ileocolic resection was performed. Intra-operative findings revealed gross thickening of the ileum, caecum and ascending colon with no definite lesions were found. The HPE showed features that are consistent with typhlitis. She was then started on 0.5mg/kg prednisolone and completed a course of antibiotics before discharge.

Nonetheless, she still had a similar presentation during follow up in May 2020, however was able able to tolerate the symptoms much better. Her prednisolone was tapered to the dosage of 5mg daily and continued as maintenance therapy. Unfortunately, she had recurrent admissions to the ward from October till December 2020 (twice/month) for severe dehydration secondary to severe acute gastroenteritis. She was then referred to a gastroenterologist for further assessment where both upper and lower endoscopy was done and revealed no remarkable findings. She then had even been re-challenged with high dose prednisolone and mesalazine as per the inflammatory bowel disease regime, yet her symptoms remained the same.

In January 2021, she came in with septic shock due to severe gastroenteritis. She appeared weak but there were no postural changes in blood pressure. The abdomen was distended with gross ascites and numerous surgical scars seen. There were only a few old vasculitis marks seen at the palm and plantar area. Other systemic examinations were unremarkable. Laboratory tests showed normal white cell and platelet counts with normochromic normocytic anaemia (haemoglobin 9.6 g/dL). Her electrolytes and liver enzymes were within normal range except for raised urea/creatinine and low albumin level - 29g/dL. Infective marker C-reactive protein was normal on the day of her presentation. Her C3/C4 - 0.27IU / 0.05IU were low as her previous baseline. Serum lactate remained persistently low throughout her hospitalisation.

An ultrasound abdomen followed by CT of the abdomen was done which showed gross ascites with diffuse thickening of small and part of the large bowels, presence of target water sign as well as bilateral hydroureter with the thickened wall. A pigtail peritoneal drain was inserted and the analysis suggested serum ascites albumin gradient (SAAG) of 1g/L with 100 mononuclear cells seen. Other cultures were negative. A repeated upper endoscopy showed gastritis with duodenitis, and colonoscopy showed aphthous ulcer at the terminal ileum with features of rectosigmoid colitis.

All preliminary investigations including laboratory blood tests, as well as all invasive tests, have ruled out tuberculosis colitis, inflammatory bowel disease and other opportunistic infections.

She was managed by a multidisciplinary team due to an unresolved and complicated condition. In view of her immunocompromised state, she was rechallenged with anti-tuberculosis treatment, in addition with intravenous hydrocortisone 100mg TDS and concomitantly given intravenous piperacillin/tazobactam and metronidazole to cover for GI sepsis. She was kept nil by mouth and later started on intravenous total parenteral nutrition.

A second opinion was sought from a GI-related pathologist on the HPE of the terminal ileum, caecum, small and large bowels from the previous surgery in March 2020 together with a biopsy from recent endoscopy. The limited right hemicolectomy specimen in March 2020 was reported as degenerative leiomyopathy with possibility of concomitant lymphocytic enteric ganglionitis and biopsy from the most recent endoscopy showed no significant pathology.

Based on the clinical presentation from March 2020 till January 2021- persistent and unremitting abdominal pain with chronic diarrhoea concurrent with the findings from the latest CT scan of hydroureter and the HPE report, she was treated as SLE-related intestinal pseudo-obstruction with the possibility of muscle damage involving both gastrointestinal tract and bladder. A 5-day course of intravenous immunoglobulin was given and she showed clinical improvement since then. She was discharged home well after four weeks of hospital stay.

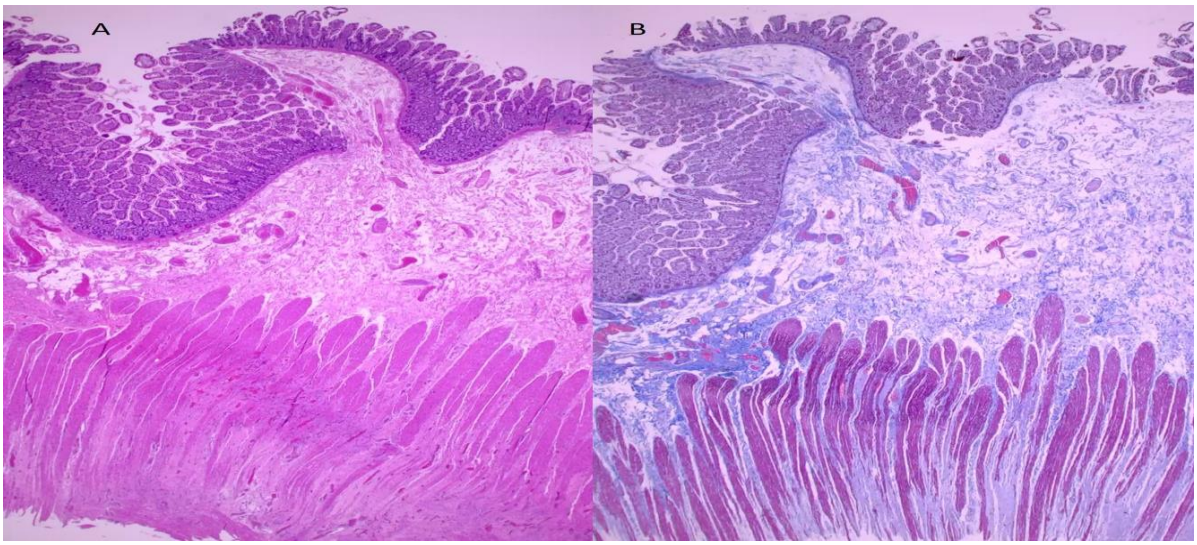

Figure 1: *Full thickness bowel wall displaying intact mucosa, muscularis mucosae and submucosa. Degenerative changes of the muscularis propria with fibrosis/hyaline change, highlighted by Masson trichrome stain (B). (A: H&E & B: Masson trichrome stain, x12.5 magnification).*

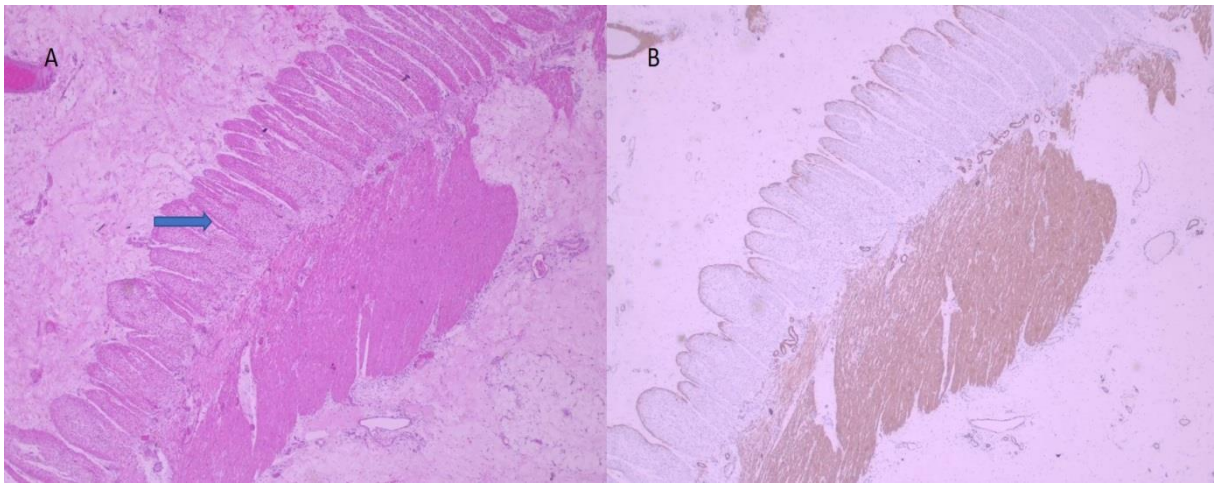

Figure 2: *Degeneration of the inner circular layer of the muscularis propria (A, arrow) with loss of Smooth Muscle Actin(SMA) expression on immunohistochemistry (B) x40 magnification H&E and SMA immunostain.*

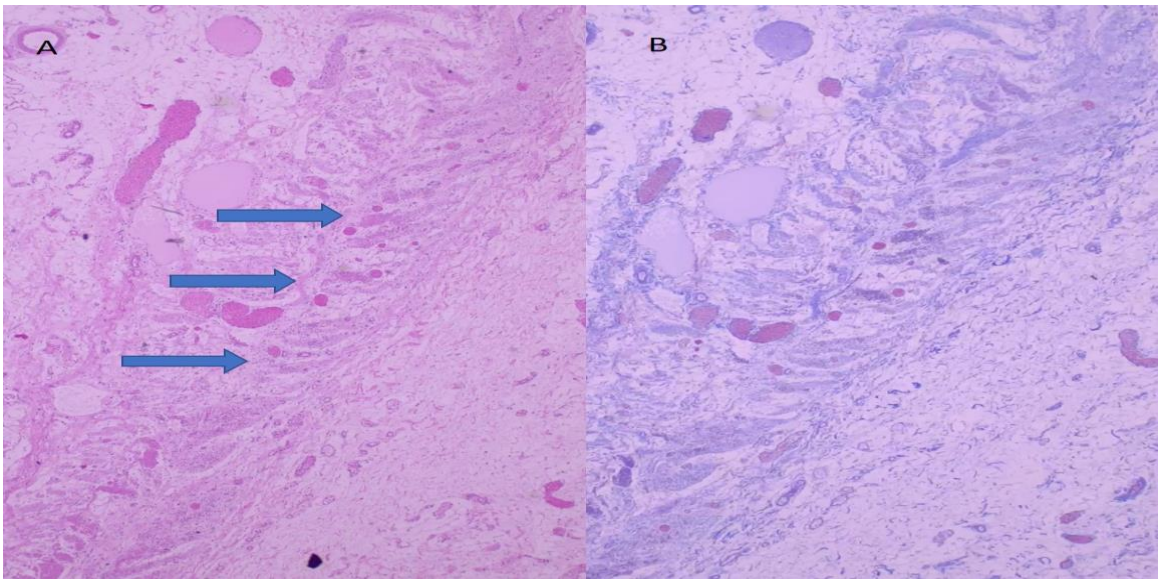

Figure 3: *Complete degeneration of both layers of the muscularis propria at the ileo-caecal junction replaced by loose fibrosis on Masson Trichrome stain (A; H&E and B ; Masson Trichrome stain, x40 magnification)*

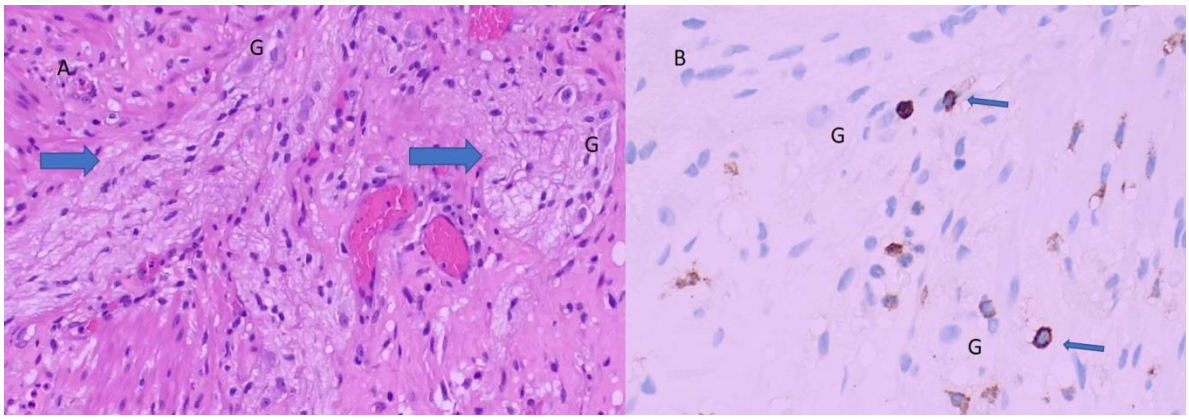

Figure 4: *Lymphocytic enteric ganglionitis. Intermyenteric nerve bundles (arrows) with presence of ganglion cells (G) [A; H&E x40 magnification]. B; Lymphocyte common antigen (LCA) immunostain highlighting presence of lymphocytes (arrows) within nerve bundles close to ganglion cells(G). (x400 magnification).*

DISCUSSION

Approach to chronic diarrhoea needs to be proper and systematic. A good history taking will be able to deduce the pattern of loose stools and aetiology of chronic diarrhoea. Be it functional or organic cause, chronic diarrhoea may affect our quality of life in the long run if left unattended. In other words, if the cause remained unfound yet the symptoms persist, perhaps further invasive procedure such as endoscopy is indicated. Bear in mind, chronic diarrhoea may be the premature symptoms of some chronic illness that may be treated successfully if detected early [1-4].

Back to the case, the middle-aged lady had remitting unresolved diarrhoea with intermittent abdominal pain for 10 months despite she had had a right hemicolectomy during her first presentation. With her background history of SLE, it is of utmost importance to consider lupus enteritis, ischemic colitis, infective colitis, inflammatory bowel disease, protein-losing enteropathy or even post-surgical related diarrhoea such as short gut bowel syndrome as the cause of chronic diarrhoea. Having said so, the thorough investigations in this case are very time-consuming, thus most of the management given will be supportive at any given time.

Chronic intestinal pseudo-obstruction is not easy to be diagnosed. There are other differential diagnoses that need to be ruled out at the same time which are also equally life-threatening if left undiagnosed. For instances, CMV colitis, TB colitis and ischemic colitis resembles the clinical presentation of the case above where she had underlying SLE and requires long term immunosuppressive therapy. Hence, her symptoms seem to be more likely contributed by infective cause rather than other causes. Nonetheless, whether or not an empirical therapy is to be instituted based on what has been deduced, risk of drug-induced side effects or other unforeseen complications need to be weighed against its benefits.

SLE-related intestinal pseudo-obstruction is a rare complication of lupus. It has been postulated that the clinical syndrome is likely associated with smooth muscle dysmotility of the gastrointestinal and genitourinary tracts, with the definite mechanism remained unknown, proposed mechanisms for smooth muscle damage are myogenic, neurogenic and vasculitic processes. In this case, specimen sent was interpreted as normal histology repeatedly due to the pathology is deeper in the smooth muscle layers and thus most mucosal biopsies are often normal and show no specific pathology. If the diagnosis remained unclear, one needs to consider ordering manometry to look for oesophageal aperistalsis, delayed gastric emptying, decreased lower oesophageal sphincter pressure, and hypomotility of the stomach and small intestines.

Lupus enteritis is also often confused with intestinal pseudo-obstruction. However, they are both different entities as lupus enteritis is due to the ischemia secondary to vasculitis or vascular thrombosis. CT scan remains as gold standard for diagnosing lupus enteritis. The presence of the three classic patterns of lupus enteritis, namely (1) bowel wall

thickening greater than 3 mm, also known as target sign, (2) engorgement of the mesenteric vessels, coombs sign, and (3) increased attenuation of mesenteric fat can also be seen in intestinal pseudo-obstruction. In this patient, the diagnosis of SLE-related intestinal pseudo-obstruction was made based on the presence of concurrent urinary tract abnormalities, evidenced by the CT imaging as well as based on histology reported by GI-pathologist [5].

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DECLARATION OF INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

CONSENT FOR PUBLICATIONS

Informed consent was obtained from the patient for publication of this case report including publications of images.

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ORIGINAL ARTICLE

Prevalence Of Depression Symptoms Among Acute Coronary Syndrome (ACS) Patients At The National Heart Institute (IJN), Malaysia.

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Key words: Depression symptoms, acute coronary syndrome

ABSTRACT

In Malaysia, ischaemic heart disease has been a leading cause of death since early 1980s. Depression is a major cause of morbidity worldwide. In most countries the number of people who would suffer from depression during their lives falls within an 8–12% range. Depression and cardiovascular disease have been linked since the early 1990s when studies have reported the prevalence of major depression in hospitalized patients with Acute Coronary Syndrome (ACS). A total of 115 ACS patients at National Heart Institute (IJN) were assessed using the Becks Depression Index (BDI-II) to screen for depression. 48.7% ACS patients at IJN had positive BDI II scores (>13). Depression was strongly associated with age, gender, marital status and history of anxiety or depression. There seemed to be no significant association with race, education, employment status and history of myocardial infarction or angina. Depression appears to be common among patients with ACS and services providing intervention for depression will help decrease morbidity and mortality among these patients.

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INTRODUCTION

Ischemic heart disease (IHD) also known as Coronary artery disease includes a spectrum of clinical manifestations from silent ischemia to sudden death and the three acute presentations namely unstable angina (UAP), Non ST elevation Myocardial infarct (NSTEMI) and ST elevation Myocardial infarct (STEMI) are traditionally grouped under the umbrella term Acute coronary syndrome (ACS)[1].

According to World Health Organization (WHO), IHD is the leading cause of death worldwide in the year 2008, claiming 7.25 million lives and further accounting for 12.8% of all deaths that year[2]. In Malaysia, IHD is ranked as the main cause of death or the majority cause of premature mortality, taking 22,701 lives[3]. This is known to have a significant economic and psychosocial implications to the country[4].

The conventional risk factors include older age group which is more than 45 years in men and more than 55 years in women[5]. Those with family history of early heart disease have higher chance of having IHD. In Malaysia, IHD is more prevalent among the Indian population with Malays ranked second[6]. Modifiable risk factors are diabetes mellitus, high blood pressure, high blood cholesterol levels (specifically, low-density lipoprotein cholesterol [LDL-C]), cigarette smoking, obesity, lack of physical activity, metabolic syndrome and those with mental stress and depression[7].

Depression is a major cause of morbidity worldwide[8]. In most countries the number of people who would suffer from depression during their lifetime is 8–12% and the same is identified in Malaysia[9]. Depression is one of the leading causes of disability as measured by Years Lived with Disability (YLD) and the 4th leading contributor to the global burden of disease (DALY) in 2000[8]. In the elderly, the prevalence of depression is reported as high as 13%[10]. It is also higher in those with underlying medical and physical problems or during the postpartum period[11].

Depression and cardiovascular disease have been linked since the early 1990s when studies have reported the prevalence of major depression in hospitalized patients with CAD[12]. Huffman *et al* showed that major depressive syndrome is present in approximately 15% of patients with cardiac disease, including those suffering from ACS. This value is much higher than those seen in the general population (4% to 5%) or primary care patients (8% to 10%)[13]. Despite their frequency, this psychiatric syndrome often goes unrecognized and can persist for months to years untreated, subsequently impacting the quality of life. Moreover, it is now apparent that depression can aggravate the course of multiple cardiovascular conditions and has regularly been shown to lower adherence to prescribed medication and secondary prevention measures[14].

Many studies have shown that depression among ACS patients is associated with recurrent cardiovascular events; and healthcare utilization and higher chance of mortality[7]. Depression has been shown to be one of the triggers of pathophysiological changes in the underlying plaque rupture, platelet aggregation, formation of prothrombotic vascular environment, formation of thrombus and other autonomic and neuroendocrine processes causing cardiac rhythm irregularity or disturbances[15].

Depression is diagnosed by standardized clinical interviews supported by psychometric or validated screening tools such as the Becks Depression Inventory (BDI). The Beck Depression Inventory has been extensively studied. Results have been consistently positive, and the Beck Depression Inventory is now known to correspond with over 90% of clinical diagnoses for patients suffering from depression[16]. But some studies have argued that BDI is self-reported, suggesting there is possibility that participants may exaggerate their answers. This happens normally among the hospitalized cardiac disease population as they feel more despondent than they would normally feel. So, it is vital to note that BDI is only used to measure depression severity and not strictly as a diagnostic tool.

MATERIALS AND METHODS

A cross-sectional study using a self- administered Becks Depression Inventory (BDI II) questionnaire was conducted at The National Heart Institute (IJN), Kuala Lumpur from January 28th, 2016 to April 5th, 2016 among ACS patients who met the inclusion criteria. The study received approval from the Joint Commission of Ethics Committee, IMU & the Ethics Committee of IJN. The inclusion criteria were Malaysian ACS patients presenting in IJN coronary care unit (CCU) and in the ward within one week of admission. The patient had to be stable with post-intervention such as Angiogram, Percutaneous Coronary Intervention (PCI), Coronary Artery Bypass Grafting (CABG), Cardioversion/ Defibrillation and Intra-Aortic Balloon Pump Counter pulsation. The patient should also understand the questionnaire which was either in English or Malay and give written consent before participating in the study. The basis of diagnosis of ACS patients is using pre-specified criteria for unstable angina (UA) and acute MI. UA patients were defined by having negative troponin blood test and any one of the following three features; a) prolonged angina occurring at rest (> 20 minutes), b) new onset of worsening angina (< 2 months) of at least Canadian Cardiovascular Society(CCS) grading scale under classification severity III, c) recent acceleration of angina accentuated by an increase in severity of at least 1 CCS class to at least CCS Class III . NSTEMI and STEMI were diagnosed by positive troponin test and ECG findings of ST depression with new T wave inversions and ST elevations respectively in a patient with chest pain.

Excluded from the study were non-Malaysian patients, ACS patients who were confused and drowsy and who do not give written consent for participating in the survey.

Socio-demographics data was obtained, and a research information pamphlet was given prior to the patient performing the Beck's Depression Inventory Test. The BDI II was translated into Malay and its validity and reliability tested in medical populations showing a reported high internal consistency, test-retest reliability, specificity and sensitivity[17].
The BDI II contains 21 questions; each answer being scored on a scale value of 0 to 3. Higher total scores indicate more severe depressive symptoms. The standard cut-off scores are as follows:

- 0–13: indicates minimal depression
- 14–19: indicates mild depression
- 20–28: indicates moderate depression
- 29–63: indicates severe depression

Descriptive statistics such as frequency and percentage were used to calculate the BDI II scores to classify patients according to the level of depressive symptoms.
Chi-square tests were used to analyze the socio-demographic data and BDI-II score of the participants. Data analysis was performed using Statistical Package for Social Science (SPSS) with a P value of <0.05 considered statistically significant.

The patients who were identified having moderate to severe depression were referred to the psychological unit of the Hospital.

RESULTS

From January 28th, 2016, to April 5th 2016, a total of 115 Acute Coronary Syndrome (ACS) patients who met the inclusion criteria were successfully recruited.

Table 1: Socio-Demographic, Clinical and Other Characteristics of the Subjects

Socio- Demographic Characteristics	N = 115 (%)
Age	
• 21-60	65 (56.5)
• >60	50 (43.5)
Gender	
• Female	21 (18.3)
• Male	94 (81.7)
Race	
• Malay	67 (58.3)
• Chinese	11 (9.6)
• Indian	36 (31.3)
• Other	1 (0.8)
Marital Status	
• Married	94 (81.7)
• Separated/ Divorced	5 (4.3)
• Widowed	16 (14.0)
Education	
• No Schooling	6 (5.2)
• Primary School	25 (21.7)
• Secondary School	54 (47.1)
• STPM/ Diploma or Equivalent	15 (13.0)
• Bachelor's/ Master's/ Doctorate degree	15 (13.0)
Employment Status	
• Private Sector	39 (34.0)
• Government Servant	14 (12.2)
• Retired	39 (33.9)
• Not Employed	7 (6.1)
• Homemaker	10 (8.7)
• Unable To Work	6 (5.1)
Past History of Myocardial Infarction	
• Yes	55 (47.8)
• No	60 (52.2)
Past History of Anxiety or Depression	
• Yes	12 (10.4)
• No	103(89.6)

Majority of the respondents were 21-60 years old (56.5%), Male (81.7%), Malays (58.3%) and married (81.7%). Almost 94.8% of the respondents had received formal education and 13.0% have completed university or college education. And approximately 46.2% of respondents are employed.

Table 2: Prevalence of Depression Among ACS patients at IJN, KL

DEPRESSION SCORES	FREQUENCY(n=91)	PERCENTAGE(%)
NO DEPRESSION (0–13)	59	51.3
MILD DEPRESSION (14–19)	24	20.9
MODERATE DEPRESSION (20–28)	20	17.4
SEVERE DEPRESSION (29–63)	12	10.4
TOTAL	115	100

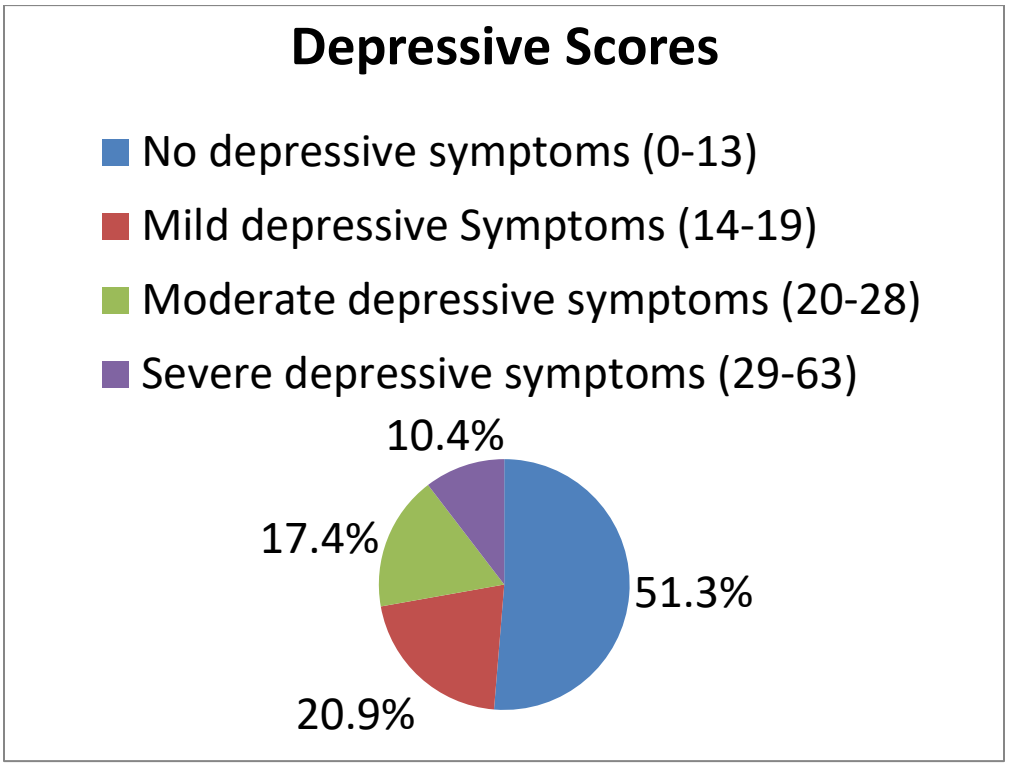

Figure 1: Prevalence of depression among ACS patients

Among the 115 ACS patients participated in this study, 56 (48.7 %) patients had depressive symptoms, which were defined by BDI II score of >13. Of this, 10.4% had severe depressive symptoms (BDI Score 29-63), 17.4% had moderate depressive symptoms (BDI Score 20-28) while 20.9% had mild depression (BDI Score 14-19). Therefore, the prevalence of depression symptoms among ACS patients in this sample is 48.7%.

TABLE 3: Association between depression and Socio-demographic variables.

CHARACTERISTICS	WITH DEPRESSIVE SYMPTOMS, n (%)	WITHOUT DEPRESSIVE SYMPTOMS, n (%)	P VALUE (p<0.05)
AGE • 21-60 • >60	37 (56.9) 19 (38.0)	28 (43.1) 31 (62.0)	*0.044
GENDER • Female • Male	15 (71.4) 41 (43.6)	6 (28.6) 53 (56.4)	*0.021
RACE • Malay • Chinese • Indian • Other	36 (53.7) 2 (18.2) 18 (50.0) 0 (0)	31 (46.3) 9 (81.8) 18(50.0) 1 (100.0)	0.124
MARITAL STATUS • Married • Separated/Divorced • Widowed	41 (43.6) 5 (100.0) 10 (62.5)	53 (56.4) 0 (0) 6 (37.5)	*0.024
EDUCATION • No Schooling • Primary School • Secondary School • STPM/Diploma or Equivalent • Bachelor's/ Master's/ Doctorate Degree	3 (50.0) 10 (40.0) 28 (51.9) 8 (53.3) 7 (46.7)	3 (50.0) 15 (60.0) 26 (48.1) 7 (46.7) 8 (53.3)	0.889
EMPLOYMENT STATUS • Private Sector • Government Servant • Retired • Not employed • Homemaker • Unable to Work	23 (59.0) 5 (35.7) 14 (35.9) 5 (71.4) 6 (60.0) 3 (50.0)	16 (41.0) 9 (64.3) 25 (64.1) 2 (28.6) 4 (40.0) 3 (50.0)	0.212

Past History of Myocardial Infarction • **No** • **Yes**	32 (53.3) 24 (43.6)	28 (46.7) 31 (56.4)	0.299
Past History of Anxiety or Depression • **Yes** • **No**	12 (100.0) 44 (42.7)	0 (0.0) 59 (57.3)	***0.000**

- Indicate significant difference at p value< 0.05

Table 3 shows the association between depression and socio-demographic variables of the patients.

On analysis using Pearson Chi-Square Test, depression was found to be significantly associated with younger age (56.9%, p=0.044), female gender (71.4%, p=0.021), being separated or divorced (100.0%, p=0.024) and history of anxiety or depression (100.0%, p=0.000).

DISCUSSION

At the time of the study, the prevalence rates for depression in the Malaysian general population was estimated to be between 8 to 12%. The prevalence of depressive symptoms among ACS patients in this study is 48.7% but this is not indicative of a diagnosis of depression. Of this number, 20.9% ACS patients have mild depressive symptoms, 17.4% have moderate depressive symptoms and 10.4% have severe depressive symptoms. Another study that was conducted in Saudi Arabia showed one in five patients admitted with ACS were suffering from moderate to severe depressive symptoms (20.6%) and were also strongly correlated with other studies[18-22]. Prevalence of depression varied from 7.3% based on HADS subscale (score >11) to 31.1% BDI II (score >10) in other studies also among post-MI patients[23,24].

In the World Mental Health survey of populations in 17 countries, the presence of heart disease doubled the odds of major depression. In the 52-nation INTERHEART study, depression was significantly more common among 11,119 subjects with MI than among 13648 controls (24 vs 18%; odds ratio,1.55)[25]. Post-Acute Myocardial Infarction (AMI) patients who were assessed with HADS in one of the studies showed that at the end of three months, there was 13.6% prevalence of moderate or severe anxiety whilst 7.3% portrayed moderate or severe depression[26].

The prevalence of depressive symptoms in our study is strongly associated with younger age (p= 0.044), female gender (p= 0.021), divorced or separated marital status (p= 0.024) and past history of anxiety or depression (p= 0.000). On the other hand, it was found that there is no association with depression symptoms and race (p= 0.124), education (p=0.889), employment status (p=0.212) and history of MI or angina (0.299). Previous studies using Hamilton Anxiety and Depression Scale (HADS) among ACS patients at University Kebangsaan Malaysia,(UKM) suggested lower anxiety and depression scores[27]. There was however a higher correlation with divorced or separated marital status as our study suggests as well. Analysis of 356 ACS patients, with an average and median age of 60 years in Brazil found point prevalence of 23% for Major Depressive Disorder MDD[28]. It also showed a significant association between MDD and female gender, marital status, younger age and sedentary lifestyle. Poor family support, female gender, younger age group and history of depression or anxiety seem to be common predictors for Depression among many ACS populations.

Being female seems to predict the risk of developing depression as was also evidenced by a study in Pakistan that showed being female, a housewife and a widow increased one's risk for having depression and anxiety[29]. Depression is generally more common in women than in men, so women with heart disease are more likely to develop depression. Heart disease tends to affect older individuals and approximately one third of women recovering from a heart attack live alone, with no immediate family member or spouse to turn to for physical or emotional support[30].

In the Lesperance study that was conducted among 222 acute MI patients in which patient's age, socioeconomic status and cardiovascular health was controlled, it was found that patients who had depression previously are more likely to get depressed during hospitalization or even after discharge. Dickens et al showed, after an acute MI, past history of depression is a predictor of Congestive Heart Failure[31].

There are some limitations in this study including the small sample size of 115 ACS patients. This is a cross-sectional study and does not attempt to identify if the depression was a cause or effect. Finally, the questionnaire is a screening tool for depression and not a diagnostic scale. A psychiatric clinical assessment is required to confirm the presence of major depression.

CONCLUSION

The prevalence of depression among ACS patients in this study is higher than expected and seems to outnumber the prevalence of depression in the Malaysian general population. It may be important then to screen all ACS patients and identify depression early to treat and manage it adequately. Special attention is required for those who have been shown to be at higher risk including younger female, single or divorced and those with past history of depression or anxiety. Managing comorbid depression will surely improve outcomes and reduce morbidity and mortality of ACS.

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CASE REPORT

POCUS A Valuable Tool In Early Detection Of Intracardiac Mass.

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Key words: POCUS, tool, intracardiac mass, tumor

ABSTRACT

A young patient presenting to the Emergency Department with chest pain may pose a diagnostic challenge. A wide range of differential diagnosis from life threatening to common causes needs to be ruled out. Even though rare, cardiac tumors or cardiac myxomas can present as a cause of chest pain in younger patients and it can be picked out with a high index of suspicion, utilization of bedside POCUS in all young patients presenting with chest pain to the emergency department and the management and definitive treatment can be planned out accordingly.

INTRODUCTION

Intracardiac tumors are rare[1]. Cardiac Myxoma (CM), a form of primary intracardiac tumor, is mostly prevalent in adults aged above 50 with approximately 0.5/million population diagnosed per year[2]. Further to clinical diagnosis, CM can only be confirmed using echocardiogram. Detection via bedside POCUS may proof critical in diagnosing any intracardiac tumors, enabling patients to seek early treatment[3].

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CASE PRESENTATION

A 31-year-old patient presented with non-radiating prickling left-sided chest discomfort, a 5/10 pain score lasting less than 5 minutes along with heart palpitations. Initial physical examination showed no remarkable findings. ECG results showed Sinus Tachycardia, heart rate of 146 with no indication of myocardial injury. Vital signs were stable and patient was placed under cardiac monitoring. After 250ml bolus over 30 minutes, heart rate improved to 96 bpm. Upon reassessment, chest discomfort and palpitations resolved. On auscultation, the heart had skipped beats. Latest cardiac monitoring showed occasional premature ventricular contractions, which was initially absent. Bedside echocardiography showed good heart contractility, small pedunculated mobile mass seen near the mitral valve, no chamber dilatation and normal regional wall motion. Patient was admitted for close monitoring and investigation on the nature of the intracardiac mass.

DISCUSSION

Whenever an adult present to A&E with complaints of chest pain, the infamous life-threatening chest pain would be considered. Primary cardiac tumors (PCT) are rare, at only 0.0017-0.03% prevalence in reported autopsy case series[4]. 75% are benign and mostly Myxoma, occurring about 50% in women aged between 50-60. An ultra-structured analysis – added to an immunohistochemical investigation suggest that CM is likely derived from a pluripotent mesenchymal stem cell or sub-endothelial cell. CM are mostly pedunculated, solitary and arise primarily adjacent to the lamina of the fossa ovalis. Clinical observations indicate 75% of cases often develop in the left atrium, 18% in the right atrium and 3% in each ventricle. CM is mostly diagnosed via transthoracic and transesophageal echocardiography[5]. CMs may be unfamiliar to most medical practitioners resulting in misdiagnosis. Differential diagnosis should include intracardiac thrombus and other cardiac tumors. Even though rare, as highlighted in this case report, young patients with undifferentiated chest pain in the emergency department can still present with cardiac myxomas. A high index of suspicion and awareness is needed to prevent premature discharges of these patients. Utilization of POCUS-ECHO will help to prevent misdiagnosis and pick up a cardiac myxoma if present in the patient. This also shows that POCUS can be a safety netting in patients presenting with chest pain to the ED. Differential diagnosis of cardiac thrombosis must be entertained and specific features via TTE may be helpful but the patient may need further diagnostic investigations to confirm the diagnosis.

CONCLUSION

Young patients with no obvious explanation for chest pain are highly encouraged to undergo an echo as precautionary measures before being discharge.

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REVIEW ARTICLE

Exercise: Background and Benefits on Health

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Key words: Exercise, Background, Benefit, Health, Yoga, Gym

ABSTRACT

There is no doubt that exercise is a complete drug of human life. Till now, this is authenticated that it proceeds on all of the organ systems. Yoga was the first impression of human ancestry. As exercise could enhance the secretion of endorphins, it eliminates stress and tension from our body. In addition, it stimulates our cerebral function so that our self-confidence and memory could work jointly. This exercise improves our metabolic rate that maintains the proper functioning of the muscular and digestive systems. A sound digestive system removes obesity as well as diabetes mellitus. In any arthritic problem (osteoarthritis and rheumatoid arthritis), physicians recommend exercises that are very effective nowadays all over the world. Regular exercise controls our blood pressure and keeps our heart healthy. Many types of cancer in males or females can be prevented easily through these combined successions of exercises (yoga, gym, aerobic, therapeutic).

INTRODUCTION

Exercise boosts happy chemicals (endorphins) [1]. Exercise is a subcategory of physical activity that is structured, repetitive and purposeful [2]. Strengthening exercises provide appropriate resistance to the muscles and increase endurance and strength. Any healthy person may become unfit physically if they do not practice exercise regularly [1]. Exercise is a 'miracle' or 'wonder drug' that alludes to the wide variety of benefits that it can provide for many individuals [3, 4]. Workout outside and start exercising in the great outdoors can also increase self-esteem even more [5]. Start every session with a warm-up; it is essential to avoid injuries [6]. Mudra is a science of hand and finger postures, can help to cure bodily

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ailments. It affects the body's energetic system [6]. The objective of this review is to focus on the impact of exercise and initiate to everybody to take part on a regular basis.

Therapeutic

Herodicus (480 BC) is known as the Father of Therapeutic exercise. Hippocrates elaborated on the beneficial effects of and its value in strengthening muscle, improving mental attitude and decreasing obesity.

Yoga

Some researchers think that yoga may be up to 10000 years old. An American gynecologist Arnold Henry Kegel (1894-1972), showed some pelvic floor muscle exercises that support the uterus, bladder, small intestine and rectum. Yoga is neither a sect nor an ideology of practice that removes our tension and ensures relaxation. We feel our soul and are different from the body. Ignorance has no beginning, but it has an end. There is a beginning but no end to knowledge. The body is an asset to be gained by hard work. The mind is said to be twofold – pure and impure. It is pure when it is entirely free from desires and impure when it is a union with desires [7]. Tiger pose may help to remove kidney stones. Lion pose is good for healthy tonsils and stammering. If we perform the peacock pose, we can remove the gastro-enteric problems. Frog and pigeon poses are effective on our pelvis and urinary bladder ailments. Eagle pose could improve the calf muscles, and cock pose increases calcium within our body [8] (Table 1; Table 2).

Table 1. Day-wise yoga routine

Days	Exercises
Day 1	Yoga
Day 2	Yoga
Day 3	Strengthening training (upper body)
Day 4	Strengthening training (lower body)
Day 5	Cardio

Table 2. Few examples of the benefits of yoga on human health

Name of exercise	Benefits
Knee bending and nose touch, Sit-up	Acidity
Knee raising, Sit on chair pose	Knee pain
Lotus pose	Gout
Lion pose	Tonsillitis
Cock pose	Increasing calcium
cow-head pose	Insomnia; kidney disease
Camel pose	Waist pain
Rabbit pose	Diabetes mellitus
Spinal twist pose	Asthma
Corpse pose	Heart diseases; High blood pressure

Source: [8]

Gym

The first commercial gym is credited to French gymnast, Hippolyte Triat. He opened his first club in Brussels, then in Paris in the late 1840s.

Aerobic

The concepts of aerobics were pioneered by physician Kenneth H. Cooper and popularized in his books Aerobics (1968) and The Aerobics Way (1977).

Integumentary System

Exercise increases heart rate up and improves blood circulation, helps to deliver oxygen and nutrients to the skin, promotes collagen production and new cells keep glowing and for anti-aging [9].

Muscular System

If we do not perform the exercise, our muscles become weak and we will be less able to take any load. Also, the bones can become fragile and thus break easily [1].

Circulatory System

Aerobic exercise promotes our cardiovascular endurance [10].

Nervous System

A vigorous workout increases brain-derived protein (known as BDNF) in the body, believed to help with decision making, higher thinking and learning [11]. A study showed that running improved vocabulary retention among healthy adults [12].

Respiratory System

Exercise improves circulation and respiration and can facilitate adequate delivery of oxygen and glucose to the muscle [13].

Digestive System

Physical activity can lower blood glucose up to 24 hours or more after a workout by making the body more sensitive to insulin [14].

Reproductive System

Indeed, exercise decrease abdominal fat, blood glucose, blood lipids, and insulin resistance, as well as it improves menstrual cyclicity, ovulation and fertility, decreases in testosterone levels and Free Androgen Index (FAI), and increases sex hormone-binding globulin (SHBG) [15].

Skeletal system

Strong muscles and ligaments reduce the risk of joint and lower back pain by keeping joints in proper alignment with the body [13].

Excretory System: During exercise, both glomerular filtration and renal blood flow are markedly reduced, resulting in decreases urine output. When fluids are over consumed (hyperhydration), there may be a reduced ability to produce urine to excrete the excess volume [16].

Cancers

It is estimated that 30 to 60 minutes of moderate to vigorous workout per day is needed to protect against colon cancer, endometrial cancer and lung cancer [17, 18]. Most studies suggest that 30 to 60 minutes per day of moderate-to-high intensity physical activity is associated with a reduction in breast cancer risk. One recent study suggested that regular vigorous activity could slow the progression of prostate cancer in men age 65 or older [19].

Table 3. Exercises are effective on our all organ systems

Features	Examples	References
Common benefits	From the very beginning exercises were effective as a whole	Pretty *et al.,* 2005; Florek, 2010; Pimlott, 2010; American Association of Kidney, 2014; Elmagd, 2016; WHO, 2016
Types of exercise	Different exercises have different output	Kabir, 2018
Integumentary system	Good blood circulation improves our skin cell	www.insider.com
Muscular system	This is important for proper metabolism	Elmagd, 2016
Circulatory system	Exercise helps to circulate blood to various parts of the body	Wilmore & Knuttgen, 2003
Nervous system	It co-ordinates with other parts of the body	Winter *et al.,* 2007; Griffin *et al.,* 2011
Respiratory system	We get more energy by this system	Boundless, 2016
Digestive system	Proper digestion maintains our	www.diabetes.org

	entire functions	
Reproductive system	Hormonal functions are important here	https://pubmed.ncbi.nlm.nih.gov/24126551/
Skeletal system	Exercise removes arthritic problems	Boundless, 2016
Excretory system	Exercise helps in our excretion	https://www.medscape.com/viewarticle/717055_3
Cancers	Cancers can be prevented through exercise	Giovannucci *et al.,* 2005; Lee & Oguma, 2006; McTiernan, 2006

CONCLUSION

At present, all exercises are being used in medical science for treating many diseases with significant results. Walking (aerobic exercise) is suitable for old-aged people; injury or accident allows therapeutic; yogic postures are excellent at home; for muscular development and metabolic rate, the gym can be a suitable option. Nowadays, the gym is becoming popular day by day. Young generations are more conscious of their health and nutritious diet. The youngsters are performing proper education, so they know everything about health, fitness, and food.

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RESEARCH ARTICLE

Consciousness And Food Habit In Some Bangladeshi Individuals

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Key words: Consciousness, Life-style, Food Habit, Nutrition, Workout, Individual, Bangladesh

ABSTRACT

There is no alternative to keep sound health regardless of scientific workout and proper nutrition. The questionnaire method could carry out adequate solutions from a population in this health issue. Total 132 individuals (ages from 20 to 45) came forward to complete ten basic questions regarding their food habits. Findings suggest that 43% of individuals took the mixed type of food whereas fruits were only 4%. Only 11% of individuals chew properly of their food and 41% showed that they never skip their breakfast. The time of supper is cardinal for a healthy life, in this point; the result showed that only 20% of people do it. In the above target population, 44% of humans stopped their food while eating after fulfilling 70-80% of their stomachs. Other than drinking water, 55% took tea. An alarming result has appeared that 74% of people used to take extra sugar in their daily meals. Some people (32%) do not take a snack after dinner, and 55% are conscious about their overweight.

INTRODUCTION

The Father of western medicine 'Hippocrates' was conscious of his health. He always maintained his health by deducting red meat. At that time, meditation was the only spiritual remedy for them. Moreover, they were very hard-worker and did all their jobs by using both their hands and legs. Walking was common for their daily livelihood. At that time, a modern type of gym was not available but they used to cut wood using an axe. In addition, people took huge loads on their shoulders. The photographs of ancient people showed their abdominal muscles, biceps, triceps, deltoid, trapezius, latissimus dorsi, etc. It was true that

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without proper nutrition and workouts that was not possible to gain such muscles. Ancient people died from diarrhea, cholera, tuberculosis, jaundice, plague and pox for unknowing the remedies. Due to a lack of pathological tests, they could not cope with the diseases. Symptomatic treatments were the only treatment, but without a proper diagnosis, it is not possible to cure ailments of the human body. Conscious people were safe from diseases always and this is well-proven and obvious in history. Though adulterated food was not cultured by ancient people, besides were a drastic lack of personal hygiene. This habit made them other hazards to health. Not only in Bangladesh but also all over the globe, humans' knowledge is increasing so that people are becoming fit day by day. Many kinds of research and modern technologies are making networks within people. According to the world report on 'Ageing and Health 2015', Japanese people have the highest life expectancy [1]. Closer adherence to Japanese dietary guidelines was also found to be associated with a lower risk of total mortality in Japanese adult people [2]. The objective of this study is to observe the present situation of the individuals' knowledge on consciousness and food habit.

MATERIALS AND METHODS

For this study, 132 individuals (student and service personnel, ages 20-45) were recruited. They took an MCQ examination (10 basic questions) in google form on the internet. Finally, all data is looked at on percentages and graphs by using word excel.

Questionnaires [3]

1. Which food item do you start with a meal?
2. How long does each meal finish on average?
3. How many times do you chew before swallowing?
4. How often do you skip breakfast?
5. When do you have the last meal of the day?
6. When do you stop eating?
7. What will you choose when you want to drink something other than water?
8. What do you use to sweeten your drink or food?
9. How often do you snack after dinner?
10. Do you want to lose weight?

RESULTS AND DISCUSSION

In the studied group, 43% of individuals took the mixed type of food whereas fruits were only 4%. Proper chewing is a must for proper digestion, but only 11% of participants showed this habit. Some people (41%) did not skip their breakfast. To keep sound health early supper (within 7 pm) is must but this habit was only in 20% population out of 132 individuals. From 20-30 portions need to vacant for peristaltic movement of the stomach (found less than 50%). Tea consumption habit is increasing in the country in a significant way (55%). A shocking result has appeared that 74% of people add extra sugar to their daily meals. Some people (55%) were worried about their overweight (Table 1; Figure 1).

Table 1. Life-style related questionnaires

Sl.	Questions	Options	Highest %	Lowest %
1	Starting meal	Mixed type food	43	
		Fruits		4
2	Time in taking meal	10 minutes	40	
		30 minutes		4
3	Chewing times	3-5 times	23	
		6-20 times		11
4	Skipping breakfast	Never	41	
		Daily		7
5	Last food taking in a day	10 pm	20	
		7 pm		3
6	When stop food eating	After filling 70-80% of the stomach	44	
		After filling 90-100% of the stomach		6
7	Drinks other than water	Tea	55	
		Milk		5
		Sugar	74	

8	For making extra sweet taste			
		Sweetner		4
9	Snacks after dinner	Never	32	
		Everyday		6
10	Conscious about losing weight	Yes	55	
		No		45

Source: [3] (questions)

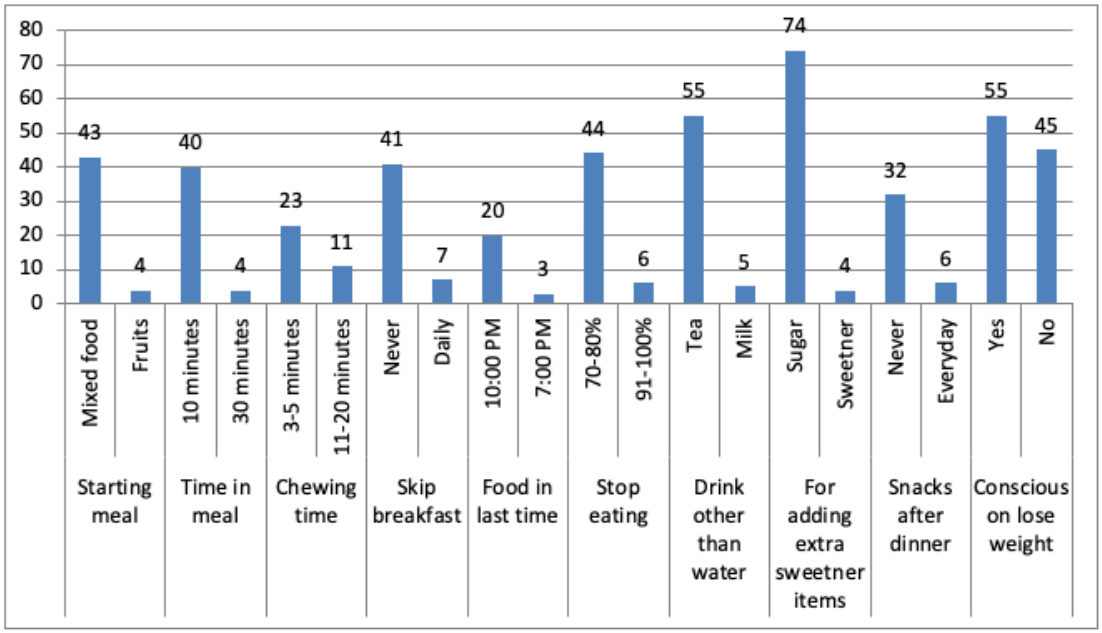

Figure 1. The highest and lowest percentages of all questions and sub-questions

Two key behaviours that may influence their healthy ageing are physical activity and nutrition [3]. Short term intake of Japanese diet (washoku) has been shown to prevent and improve their metabolic syndrome [4]. 58% started their meals with vegetable or salad and 23% with soup or drink. 13% of respondents started with meat or fish and only 6% with rice or noodles [3]. Japanese 'Ministry of Health Labour and Welfare' provide standardised questionnaires to health check-up centers that covers behavioural aspects including eating habits such as breakfast skipping and eating out [5]. Eating vegetables first have been shown to be simple and effective when it comes to improving glycemic parameters mainly in diabetic Japanese patients [6]. Late meals or snacking is associated with obesity and metabolic syndrome [7, 8, 9]. Green tea may also protect against functional disability in elderly people [10]. Recently, the issue of distorted body image and abnormal weight control among Japanese adult persons (particularly in younger women) has been focused in both media and literature [11].

CONCLUSIONS

Health is the original subject of human life. A strong or healthy nation could achieve anything easily. Physical exercise and nutritious food ensure a disease-free life. Only consciousness could motivate our mentality to run in a healthy way. When consciousness would be stable, our physical labor and fresh and balanced food (according to demand) are added automatically as a habit.

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CASE REPORT

An Unusual Case of Extraskeletal Ewing Sarcoma (EES) Post Therapeutic Radiation: A Case Report

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Key words: Extraskeletal Ewing Sarcoma, Breast, anterior abdominal wall

ABSTRACT

Extraskeletal Ewing Sarcoma (EES) is a rare tumor under the umbrella of Ewing sarcoma family of tumors (EFT) and is increasingly being reported in literature. We present a case of EES of the upper anterior abdominal wall in a 46 years old lady, who previously had left breast invasive carcinoma which was treated with surgical resection accompanied with adjuvant radiotherapy 7 years ago (2013). Therapeutic radiotherapy in this case may had played a role in the genesis of the tumor.

INTRODUCTION

EES together with primitive neuroectodermal tumor (PNET), Askin tumor and atypical ES forms the Ewing sarcoma family of tumors (EFT). In comparison to Ewing Sarcoma (ES) which are commonly seen in children and adolescent; EES is seen in older age group typically in the second to third decade of life; has a higher prevalence to the axial skeleton, paravertebral region and lower extremities as compared to the appendicular skeleton seen in ES [1]. Few cases of EES of the breast had been reported but not as a secondary tumor post radiation [2].

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Imaging in EES are non-specific [3] and diagnosis can be made with histological and immunohistochemistry study which would reveal small round blue cells with positive stain of CD99 and FLI-1.

Case

A 46 years old female presented to the outpatient surgical clinic with a rapidly growing left hypochondriac region fungating mass for past 3 months. It measured around 8cm x 6cm, appeared cauliflower-like with no contact bleeding and was painless. Clinically was not fixed to underlying structures. (Figure 1)

Figure 1: Left hypochondriac region fungating mass measuring 8cm x 6cm.

Patient's past medical history was significant for a stage 3 (T3N1M0) left breast invasive carcinoma, diagnosed 7 years ago. She received neoadjuvant chemotherapy comprising of 5-fluorouracil, epirubicin and cyclophosphamide for 6 cycles, subsequently underwent left mastectomy and axillary clearance with clear margins. Histopathology of the tumor revealed an infiltrating ductal carcinoma, Bloom and Richardson grade 3. Whereas hormonal status of the tumor was negative for estrogen receptor, progesterone receptors as well as C-erb-B2 oncoprotein. Hence, patient was subjected for radiotherapy to left chest wall with radiation dose of 45Gy/25 fractions. Since then, patient was on regular surveillance in our outpatient surgical clinic with no locoregional recurrence until present time.

We proceeded with a wedge biopsy of the left hypochondriac mass which revealed features suggestive of an Ewing sarcoma (positive stains for CD99 and FLI-1). Contrasted Enhanced CT scan (Figure 2,3) showed a fungating homogenous mass with everted edges at left upper abdomen, measuring 5.4cm x 5.8cm x 6.3cm which does not appear to arise from the bone. It has a clear fat plane with adjacent rectus abdominis and transverse abdominis muscles. Bone scan was unremarkable.

Figure 2, 3: Left upper abdominal subcutaneous mass with suspicious features; does not breach the peritoneal cavity

Patient was subsequently subjected for a wide local excision of the tumor (Figure 4).

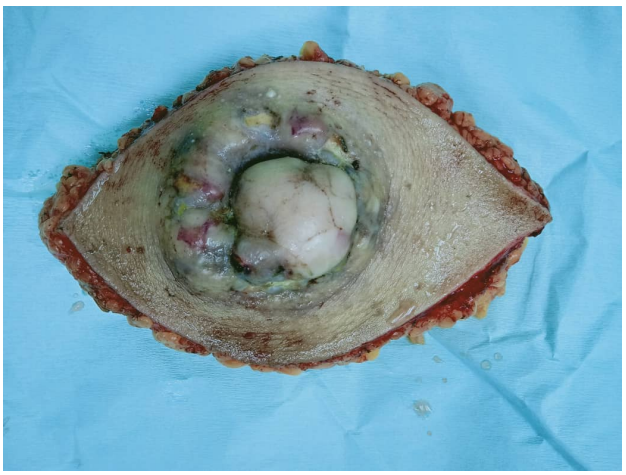

Figure 4: Well circumscribe tumor of left hypochondriac region, measuring approximately 5cmx 6cm; irregular and firm in nature.

A fairly circumscribed lobulated soft to firm cream tumor with areas of necrosis measuring 3.5x 7.5x 6.0cm was seen in gross cut section. Microscopically, the tumor is arranged in solid sheets with pseudorosettes divided by thin fibrous septa. Mitosis is brisk with necrosis seen (<50%). The tumor measures 3mm from closest radial margin and is seen in the deep margin. Immunohistochemistry showed tumor cells positive for CD 99, FL-1, CD 56, BCL-2,

CD117 and vimentin. (Figure 5a, 5b, 5c, 5d). The morphology and immunohistochemistry studies thus are confirmative for Extra-skeletal Ewing Sarcoma.

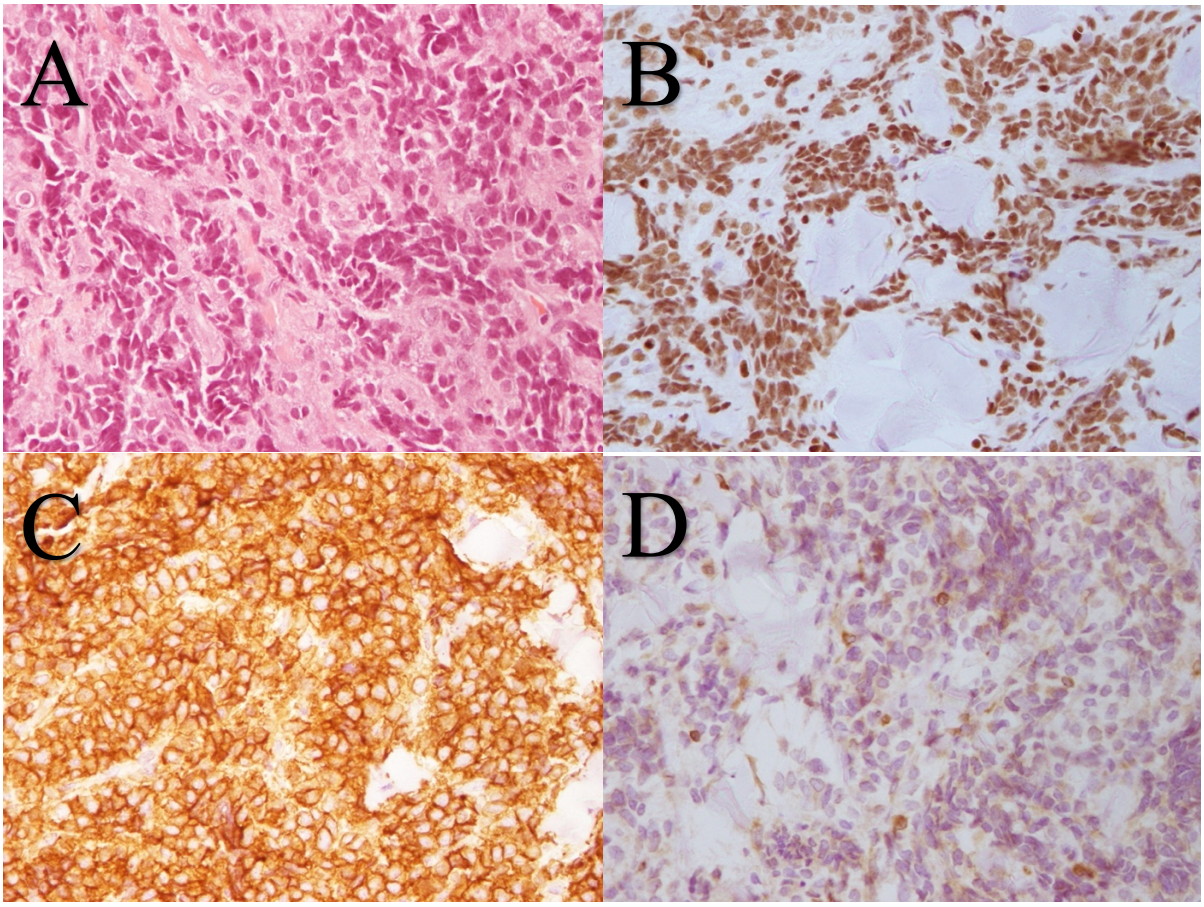

Figure 5(A) Hematoxylin and Eosin staining (magnification x40) showing tumour cells arranged in pseudorosettes; (B) Immunohistochemical staining for FL-1 (magnification x40), patchy; (C) Immunohistochemical staining for CD99 (magnification x40), tumor cells positive (membranous, diffuse); (D) Immunohistochemical staining for BCL-2 (magnification x40), patchy, weak.

In view of involved margin, patient was planned for 14 cycles of chemotherapy. A CT scan was repeated prior to commencement of chemotherapy which showed no residual tumor (Figure 6).

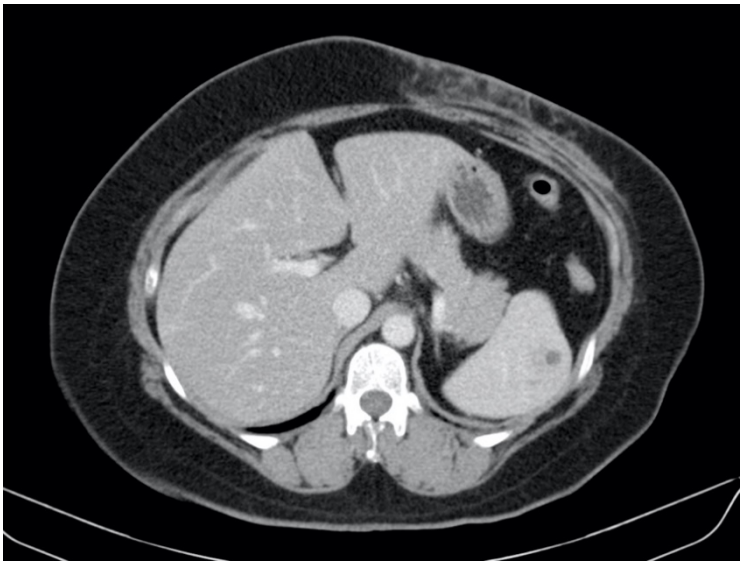

Figure 6: CT abdomen post wide local excision of tumor; prior to commencement of radiotherapy

DISCUSSION

As treatment for invasive breast carcinoma with breast conserving surgery supplemented with adjuvant radiotherapy and chemotherapy become more popular, the incidence of secondary tumor post radiotherapy is increasing [4]. Specifically, more cases of soft tissue sarcoma are reported in breast cancer survivor patients who had received radiotherapy prior and was related to radiation dose [5,6].

The above patient had received therapeutic radiotherapy for invasive breast carcinoma 7 years ago. In accordance to Cahan et al [7] and later modified by Arlen et al [8], the definition of radiation induced sarcoma (RIS) includes sarcoma that arises within the field of radiation; has a different histology with previous tumor that was treated with radiation and lastly patient should have been treated with radiation at least 3 years prior to development of sarcoma. Additionally, the commonest RIS in breast cancer includes angiosarcoma and rarely osteosarcoma. To the best of the author's knowledge, there are no case reports of EES post therapeutic radiation. Hence, in view of location of the tumor at the upper anterior abdominal wall which was in near proximity of previous irradiation field, radiation may have played a significant role in manifestation of this patient's secondary tumor.

As previously mentioned, EES is a rare tumor. Location of these tumors have been reported in various organs including jejunum, pancreas, and even as a synchronous tumor with gallbladder carcinoma [9,10,11]. Diagnosis of EES can only be made by immunohistological studies and confirmatory diagnosis is via molecular study which would show a translocation of chromosome 11 and 12, t(11:12), as imaging for EES is nonspecific. Due to unavailability of molecular study in our center, our patient's diagnosis was confirmed via immunohistological studies.

Treatment of EES generally includes surgical resection with clear margins, followed by chemotherapy. Few studies concluded that radiotherapy may not improve overall survival despite patient receiving an R1 resection [12]. However, there are still no standard guidelines for treatment of EES and the above patient was not subjected for radiotherapy. During time of writing, patient is receiving her 2nd cycle of chemotherapy.

CONCLUSION

In conclusion, with the increasing trend of treatment with neoadjuvant and adjuvant radiotherapy in breast cancer, there is an increasing incidence of radiation induced secondary tumors. It is imperative for clinicians to be aware of the effects of radiation and the need for long term follow up and early detection of radiation effects.

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REVIEW

A Review On The Benefits And Challenges In Emergency Critical Care Chart Initiation Among Red Zone Patients.

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Key words: Critical Care Chart, Red Zone Patient, Benefits, Challenges, Selayang Hospital

ABSTRACT

Creating a critical care monitoring system within the red zone, without having a separate space or facility to be called a temporary ICU by implementing close hemodynamic monitoring parameters within the red zone itself would be beneficial for emergency critical care services. We had created an emergency critical care chart, using inspiration from a standard ICU chart that is used in the Malaysian ICU setting. A standard ICU chart contained the parameters of hemodynamics such as blood pressure, heart rate, vital signs, dextrose monitoring, ventilator settings, blood gas analysis measures and intravenous drips and vasopressor or medications. A total of 8 patients were present in the Red zone at the time of the audit. Out of these 8 patients, 6 patients had critical care charts and 2 patients did not have critical care charts. Out of the 6 patients, only one was charted completely whereas the other 5 were incomplete. The incomplete charting of all 5 patients involved the ventilator, blood gases, drip and vasopressor segments. Our review demonstrated that a critical care chart can be useful in the emergency department setting treating patients within the red zone itself when there is a limitation in finding a facility or limitation of space, staffing and sullies to create a ED-ICU model. However further initiatives are needed to make the critical care chart more emergency friendly, reducing clutter,

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incorporating other levels of staff completing the sections of ventilator, blood gases and inotropic support and setting up of policies to ensure compliance to charting.

BACKGROUND

Following admission, resuscitation and treatment of patients admitted to the red zone in emergency departments, many patients will be stranded while waiting for a bed in the ICU or acute wards of respective disciplines[1].

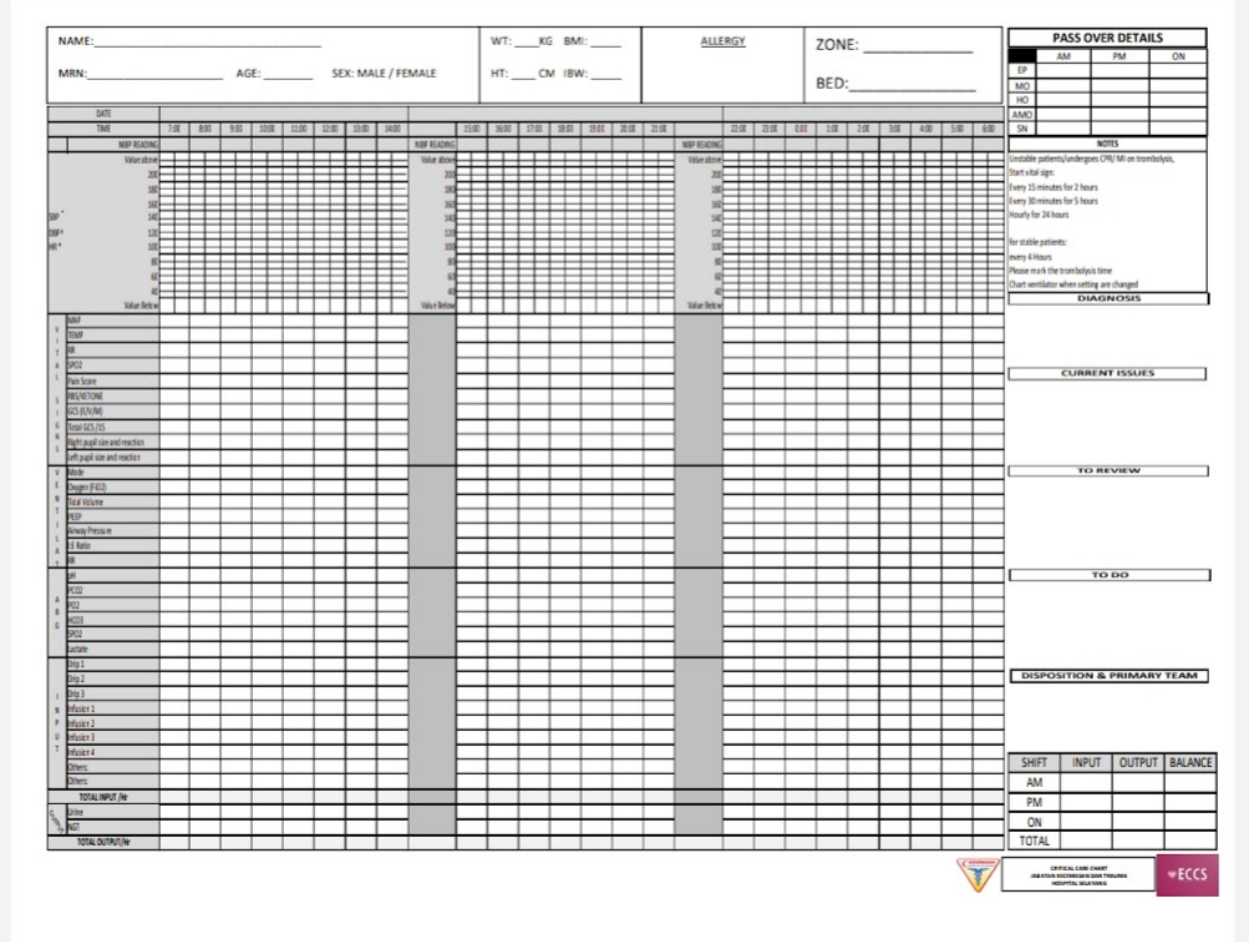
The ED-ICU model that emergency departments and ICUs are familiar with can be a challenge in emergency departments without adequate facilities such as space, staffing and supplies[2].

Creating a critical care monitoring system within the red zone, without having a separate space or facility to be called a temporary ICU by implementing close hemodynamic monitoring parameters within the red zone itself would be beneficial for emergency critical care services[3].

Using inspiration from a standard ICU chart, a critical care chart that encomprises hemodynamic, investigative and treatment parameters can help to better evaluate the patient's hemodynamics and improve critical care services while critically ill patients were awaiting admission to the ICU or acute wards.

METHODS

We had created an emergency critical care chart, using inspiration from a standard ICU chart that is used in the Malaysian ICU setting. A standard ICU chart contained the parameters of hemodynamics such as blood pressure, heart rate, vital signs, dextrose monitoring, ventilator settings, blood gas analysis measures and intravenous drips and vasopressor or medications.



This chart was introduced to the paramedics via messaging services for them to familiarize with this chart. Subsequently, a Continuous medical education session was arranged via a zoom meeting, in which all paramedics who will be working in the resuscitation zones were present. This chart was explained in detail and ways to plot the chart were also introduced.

RESULTS

A random audit was carried out one month after the initiation of the critical care charting in the red zone (01/12/2021). The objective of the audit was to collect data on the compliance and usage of the critical care chart in the emergency department, whether the critical care chart was being used or not. For cases that the critical care chart was used, was the information complete or incomplete. In cases where the information was incomplete, sections of the missing data were also documented.

Patient information	Shift	Location	Result	Complete	Incomplete	Remarks/Section not completed
BED 1 Name: LTK	AM	Resus Non Covid	Done	Complete		
Bed 2 *No patient						
Bed 3 Name: AA	AM	Resus Non Covid	Done		Incomplete	Ventilation ABG Drip/Vasopressor
Bed 3 Name: S	AM	Resus Non Covid	Done		Incomplete	Ventilation ABG Drip/Vasopressor
Bed 4 Name: P	AM	Resus Non Covid	Done		Incomplete	Ventilation ABG Drip/Vasopressor
Bed 4 Name H	AM	Resus Non Covid	Not Done			
Bed 5 *No patient	AM	Resus Non Covid				
Bed 6 NN	AM	Resus Non Covid	Done		Incomplete	Ventilation ABG Drip/Vasopressor
Bed 6 Name: YC	AM	Resus Non Covid	Not done			

The audit was done on the 1st of December 2021, one month after the initiation of critical care chart in the Red zones of the emergency department. The results showed that a total of 6 beds are available in the red zone with the capacity to expand to 12 beds.

A total of 8 patients were present in the Red zone at the time of the audit. Out of these 8 patients, 6 patients had critical care charts and 2 patients did not have critical care charts. Out of the 6 patients, only one was charted completely whereas the other 5 were incomplete. The incomplete charting of all 5 patients involved the ventilator, blood gases, drip and vasopressor segments.

DISCUSSION

The emergency department focuses on delivery of resuscitative care and disposition of patients to the primary team wards or ICU for further and definitive care. However, hospital bed occupancy rate remains high not only in Malaysia but all over the world and this has led to a patient outflow obstruction which then leads to longer waiting times of critically ill patients within the Emergency department[4].

The backlog of patients and long waiting times for admission to designated acute beds in the wads and ICU has led to many institutions adopting the ED-ICU model. A facility that can cater for critically ill patients with an ICU setup and level of care. Nonetheless it requires a separate space, more staffing and more supplies of critical care equipments[5]

A critical care chart or an ICU chart is a charting system used in the ICUs to monitor patients vital signs, ventilation, important resuscitative investigation such as blood gases, drips, input and output charting as well as requirements of inotropes or vasopressors. It helps in recognising patterns of patients' hemodynamics and an overall picture of the patient's response to treatment which leads to easier recognition of deterioration and response to treatment given.

In view of limited space, staffing and supplies to create an ED-ICU model, the idea to come up with critical care charting within the red zones of the Emergency departments itself was used to monitor and chart hemodynamic parameters and treatments given to critically ill patients in the emergency department[6].

The results showed that compliance to use the critical care chart within the red zones of the emergency departments was good at 75 percent of patients receiving critical care charting. This could be due to the awareness of the paramedics to chart important findings of the patients to help improve care. A continuous medical education that was carried out before the initiation also probably helped increase the knowledge or critical care within the emergency departments[7].

Out of the patients receiving the critical care chart, 83 % of them were incomplete. This could be due to the busy Emergency department environments, and needing to continuously attend and resuscitate new patients leaving out vital critical care chart information[8].

100 % of the information left out were of the ventilation, blood gases, drips and inotropes of patients. This could be due to continuous changing of the ventilator setting, recurrent repetitions of blood gases which sometimes can be hourly in the Critically ill, and the dynamic and ever changing dose of inotropic adjustments.

CONCLUSIONS

Our review demonstrated that a critical care chart can be useful in the emergency department setting treating patients within the red zone itself when there is a limitation in finding a facility or limitation of space, staffing and sullies to create a ED-ICU model. However further initiatives are needed to make the critical care chart more emergency friendly, reducing clutter, incorporating other levels of staff completing the sections of ventilator, blood gases and inotropic support and setting up of policies to ensure compliance to charting.

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