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Contents

Radioiodine Ablation in Postpartum Patient with Differentiated Thyroid Cancer: A Case Report and Review of Literature.

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Correspondence*: Dr. Ahmad Zaid Zanial, Nuclear Medicine Department, Hospital Pulau Pinang, Jalan Residensi, 10450 Pulau Pinang. Tel: 04-2002520*

Abstract
Well differentiated thyroid carcinoma is the most commonly seen thyroid cancer. One of the presenting symptoms is thyroid nodule. In most cases following initial workup and whereby tumour is resectable, surgery is the mainstay of treatment. The subsequent postsurgical management utilising radionuclide Iodine-131 (I-131) has long been established and extensively being studied and discussed. This present case report illustrates the general overview of differentiated thyroid cancer (DTC) as well as the concerns related to radioiodine ablation in a postpartum patient with DTC.
Keywords: *radioidine ablation, differentiated thyroid cancer, postpartum*

Introduction

Most commonly seen thyroid cancer cases are well differentiated thyroid carcinoma (DTC). Patients may present with thyroid nodule or symptoms related to tumour extension, local spread and metastasis. Surgery is the mainstay of treatment in the majority of cases following initial workup whereby tumour is resectable. The subsequent postsurgical management would usually include the usage of radionuclide Iodine-131 (I-131). However, there are several important recommended precautions and preparation measures in optimising the treatment efficacy and safety plus minimising the possible adverse effects of I-131. These include concerns related to radioiodine ablation in postpartum patients and pre-ablation cessation of breastfeeding.

Case Presentation

A 40 years old lady with underlying hyperthyroidism was noticed to have a hard thyroid nodule in June 2013. Ultrasound of thyroid showed multiple nodules in both thyroid lobes and isthmus with some appearing irregularly hypoechoic with microcalcification. She underwent fine needle aspiration cytology of thyroid nodule that revealed malignant neoplasm with features suggestive of papillary carcinoma. She was then advised for surgery and underwent total thyroidectomy on in August 2013. Histopathological examination of the surgical specimen was reported as multifocal papillary thyroid carcinoma with possible vascular involvement and background features of multinodular goitre.

Postoperatively she was prescribed with thyroxine. At that moment, she was also confirmed to be pregnant in her second trimester. She delivered her baby in November 2013 and subsequently breastfed the infant. She was then reviewed at the Nuclear Medicine Department in March 2014 after being referred for remnant thyroid radioiodine ablation. She was counselled regarding the need for cessation of breastfeeding and other pre-ablation preparations. No medication was prescribed to stop the lactation. She came for another clinic review in April 2014. At that point, she has already stopped breastfeeding her child and being planned for radioiodine ablation in May 2014.

Upon admission to the radioiodine ward, there was no longer breast milk production. She received radioiodine ablation with 80 mCi of I-131 with prior 2 doses of intramuscular recombinant human thyroid stimulating hormone injections. Her TSH level was 78.94 µIU/mL and the stimulated serum thyroglobulin level was < 1.0 µg/L. Day 3 post ablation scan revealed 2 foci of increased tracer uptake in the neck region with star effect in keeping with iodine-avid functioning thyroid tissue (Figure 1 and 2). There was mild tracer uptake seen in the soft tissue at the anterior chest bilaterally due to non-pathological uptake in the breasts (Figure 1 and 2). Elsewhere was physiological uptake.
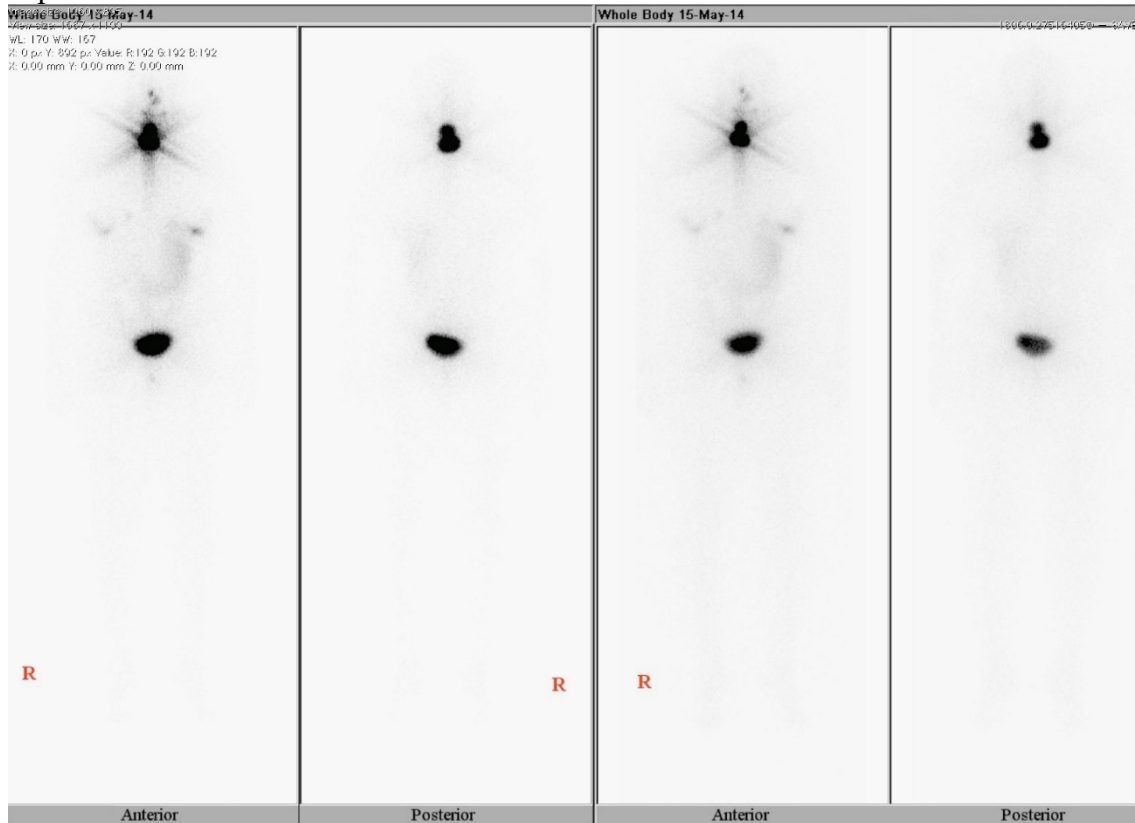

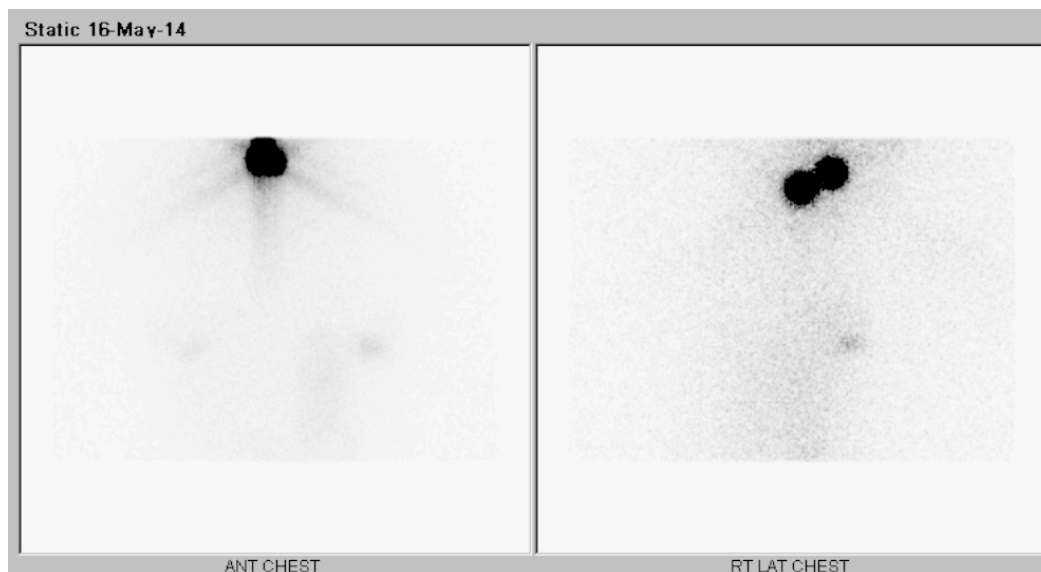Figure 1. Post ablation scan - whole body anterior and posterior views.

Figure 2. Post ablation scan - spot views of the chest (anterior and right lateral views).

Discussion

The oral administration of radionuclide I-131 for the treatment of benign and malignant thyroid disorders has been a commonly accepted procedure for the last 60 years (1). As for thyroid cancer, it is the most common of the endocrine malignancies with annual incidence varying considerably by geographic area, age and sex (2). DTC accounts for > 90% of thyroid cancer cases, with most patients having an excellent prognosis (3). Although DTC can be divided into papillary, follicular and Hurtle cell subtypes, they all actually arise from the thyroid follicular cells. Most DTC cells preserve the ability to concentrate and retain iodine (4).

A suspicious thyroid nodule is usually being assessed by ultrasound and cytology to ascertain the diagnosis. Total or near-total thyroidectomy is the initial treatment of DTC whenever the diagnosis is made before surgery (2). It is widely recognised that I-131 has become an integral component of the postsurgical management of DTC (5). Several published guidelines have looked into the staging of DTC and its risk stratification that incorporates tumour related parameters, histology and other clinical factors including serum thyroglobulin level and findings of post ablative scan (2).

Consequently decision related to the management with I-131 and selection of radioiodine activity is commonly directed by the disease stage and its risk stratification. In our local setting, radioiodine is being dispensed as liquid solution. The physical half-life of I-131 is approximately 8 days. I-131 emits beta particles at various energies with the maximal energy being 606 keV and the mean energy being 191 keV. It also emits gamma rays of 364 keV and 637 keV. As ionising radiation delivered by the beta particle loses its energy after travelling about 2 mm in tissue, it disrupts chemical bonds throughout the cell inflicting devastating damage on DNA molecules and triggering cellular dysfunction leading to ultimately cell death

(In a most recent publication, it has been described that the use of radio iodine in thyroid cancer generally can be divided to 3 categories; (a) remnant ablation of thyroid tissue after surgery to facilitate future monitoring of thyroglobulin, (b) adjuvant therapy after resection for patients with increased risk of

recurrence, which mirrors adjuvant therapy in other solid cancers and (c) cancer treatment in an attempt to destroy known or suspected active macroscopic viable malignant disease (5). However, there are also recommendations that certain cases such as unifocal papillary carcinoma ≤ 1cm without any evidence of metastasis, capsule invasion, history of radiation exposure and unfavourable histology would not require I-131 ablation (7).

There are several important preparations prior to radioiodine treatment in order to promote I-131 uptake and subsequently increase its effectiveness. For a sufficient time before the contemplated therapy, patients must discontinue use of iodine containing foods, supplements and medications. They should be on low-iodine diet for approximately 2 weeks prior to radioiodine administration. Furthermore the serum TSH level prior to radioiodine treatment should exceed 30 µIU/mL in order to maximise I-131 uptake which could be attained by withholding thyroxine hormones for about a month or by injection of recombinant human TSH (1, 4).

Pregnancy and breastfeeding are known contraindications to I-131 therapy. Pregnancy must be excluded before each treatment as radioiodine may cause detrimental risks to the foetus. Women who are lactating or have just recently stopped breastfeeding also should not be treated with I-131 since the lactating breasts may concentrate a substantial amount of iodide. This is firstly to prevent milk containing I-131 from being breastfed to the infant and secondly to limit radiation exposure of the breast tissue which has increased expression of sodium iodide symporter during lactation (8). Patients should be advised to discontinue breastfeeding for approximately 6-8 weeks before I-131 administration (4, 9). Cessation of lactation should continue after the therapy and breastfeeding can be undertaken with the birth of another child (1, 8).

The patient in this case report was postpartum and had breastfed her child at the time of referral for radioiodine ablation. She was advised to discontinue lactation and delay the I-131 treatment until lactation has fully stopped. Nevertheless, in certain circumstances some patients may require cautious use of short course of dopaminergic agents such as bromocriptine and cabergoline to stop lactation. Dopamine agonists could be beneficial in reducing breast exposure in recently lactating women, although cautiousness should be exercised given the risk of serious side effects associated with their routine use to suppress postpartum lactation (9). Possible adverse effects include gastrointestinal symptoms as well as cardiovascular, neurological and psychiatric events.

Upon treatment, the presently discussed patient no longer has breast milk production. However, her post ablation scan showed iodine-avid tissue in the neck and mild tracer uptake in the breasts bilaterally. Added spot views were acquired to exclude lung metastasis. Radioiodine activity in the chest can be due to uptake in the lungs, breasts, heart, thymus, trachea, oesophagus and external contamination such as skin, hair and garment (10). Radioiodine breast uptake has been reported to be unilateral, asymmetrical or symmetrical bilaterally in the patterns of full, focal, crescent or irregular uptake (11). In certain cases, a pre-radioiodine therapy scintigraphy with low dose Iodine-123 or Technetium-99m pertechnetate can reasonably be used to assess whether the previously lactating breasts still concentrate iodine and guide appropriate timing of the treatment (1, 12, 13).

Conclusion

Administration of oral radioiodine for the treatment of DTC has long been established and became an important aspect of the post-operative management. There are several important recommended precautions and preparation measures related to the therapeutic use of radioiodine. In a postpartum patient with DTC who is referred for remnant thyroid radioiodine ablation, measures should be taken to ensure adequate discontinuation of lactation prior to treatment with I-131. Cessation of lactation can be achieved either physiologically or pharmacologically. Despite that, mild radioiodine activity may still be present in the breasts and must not be mistaken for pathological lung uptake.

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STUDY OF NASAL PARAMETERS AND NOSE TYPES AMONG UNIVERSITY STUDENTS IN MALAY POPULATION

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Abstract

Human nose can be found in many shapes and sizes. Racial, ethnic and environmental influences can result in different appearances of the nose. Nasal parameters such as nasal height, nasal width and nasal index were investigated in the Malay population, using convenient sampling methods. Study sample consisted of 80 young Malay adults (40 males, 40 females) aged 19-30 years. The mean $\pm$ SD values of nasal height of Malay male and female were 52.2 $\pm$ 5.3 and 50.4 $\pm$ 9.7 respectively. The mean $\pm$ SD values of nasal width of Malay male and female were 39.7 $\pm$ 3.0 and 36.7 $\pm$ 3.2 respectively. Mean nasal indices in male and female were 76.66 and 74.55 respectively. The predominant nose type in Malay was found to be of mesorrhine type (medium nose) in both male (67.5%) and female (70%). These findings were comparable with studies done in other Asian races such as Malaysian Indian, Chinese and other Indians. The findings of this study may contribute to satisfactory outcomes in cosmetic and reconstructive rhinoplastic surgery, anthropology, and forensic medicine in the Malay population.

Key words: *nasal height, nasal width, nasal index, Malay population.*

INTRODUCTION

Human nose can be found in many shapes and sizes. Racial, ethnic and environmental influences can result in different appearances of the nose [1]. The shape of the nose can be determined by climate condition (Last, 1981). Narrow noses are favoured in cold and dry climates while broader noses in warm and moist weather, as a consequence of natural selection in human evolution (Hall and Hall, 1995). Nasal index is very useful in anthropology in distinguishing racial and ethnic differences (Franciscus and Long, 2001; Porter and Olson 2003; Aung, 2000). It also exhibits sexual differences (Zhang, 1990) and it has become a useful tool in Forensic Science (Xu *et al*., 2001). The facial

and nasal dimensions are among the most important cephalometric parameters that describe human morphology [2].

Sharma and Sharma, 2012[3] classified the nose types based on the nasal index values as - Hyperleptorrhine or very narrow or fine nose (<54.9), Leptorrhine or narrow or fine nose (55.0 - 69.9), Mesorrhine or medium nose (70.0 - 84.9), Platyrrhine or broad nose (85.0 - 99.9) and Hyperplatyrrhine or very broad nose (100.00).

Several studies reported the nasal indices of Caucasian populations as leptorrhine type and a few reported on African and Nigerian populations as platyrrhine type. Risely (1915) reported the nasal indices of Indo-Aryan and

Sudroid populations (Indian Negroids) as 66.9 - 79.6 and 73.1 - 95.1 respectively[4].

As there was scarcity of information on nasal index in Malay population, this study was aimed at identifying the mean values of nasal parameters and the frequencies and percentages of nose types in different sexes of the Malay population.

MATERIAL AND METHODS

The study sample was selected using the convenient sampling method. It consisted of 80 university students (40 males and 40 females) from UniKL RCMP, Ipoh. The age of the subjects ranged from 19 to 30 years. Subjects who had no trauma or no surgery of the face or nose and no history of cleft lip or cleft palate were included in the study. Nasal height and width were measured as shown in figures 1 and 2.
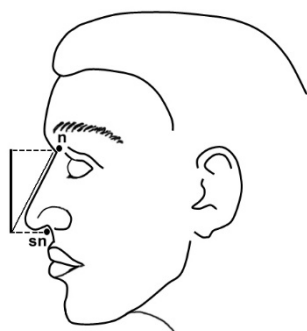
Figure 1
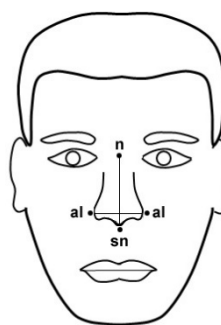
Nasal height was measured as the distance from the nasion (n) to the subnasale (sn). Nasion is the midpoint of the naso-frontal suture at the root of the nose. Subnasal (sn) is the lowest point on the nasal septum, where it joins the upper lip.

Nasal width was measured as a straight distance and at right angle to the nasal height, from ala to ala (al-al). Alare (al) is the most lateral point of the nasal aperture.

A 12-inch fast display calliper: Tresna, series: EC05 (ID: 111-103-20g) was used to measure the nasal parameters. Measurements of all subjects were done by one observer to prevent inter-observer variation. On the basis of the mentioned measurements, the nasal index was calculated as:

Nasal index
    = [nasal width/nasal height] x100

The data obtained was subjected to statistical analysis. Basic descriptive statistics and independent sample t-test were conducted using SPSS (Statistical Package for Social Sciences) version 17. The '*p*' value of less than 0.05 was considered as statistically significant.

Figure 2

RESULTS

Nasal parameters in Malay population were shown in tables 1-4.

Table 1. Nasal height and nasal width in male and female Malay population.

Landmark	Mean value $\pm$ SD	95% CI	p value
Male-nose height (n-sn)	52.2 ± 5.3	50.47 – 53.88	0.304
Female-nose height (n-sn)	50.4 ± 9.7	47.25 – 53.46	
Combined Nose height	51.3 ± 7.8	49.5 – 53.0	
Male-nose width (al-al)	39.7 ± 3.0	38.7 – 40.6	< 0.001
Female-nose width (al-al)	36.7 ± 3.2	35.7 – 37.8	
Combined nose width	38.2 ± 3.4	37.4 – 39.0	
Male nasal index	76.7 ± 9.1	73.8 – 79.6	0.350
Female nasal index	74.6 ± 10.9	71.1 – 78.0	
Combined nasal index	75.6 ± 10.0	73.4 – 77.9	

Table 1 showed nasal height and nasal width in male and female of the Malay population. In Malay population the nasal width was found to be significantly higher in male than in female ($p < 0.05$).

Table 2. Frequency and percentage of nose types found in Malay male according to the classification of nasal indices.

Types of nose in male	Nasal Index	Frequency	Percentage
Hyperleptorrhine (very fine nose)	<54.9	0.0	0.0
Leptorrhine (fine nose)	55.0-69.9	8.0	20.0
Mesorrhine (medium nose)	70.0-84.9	27.0	67.5
Platyrrhine (broad nose)	85.0-99.9	4.0	10.0
Hyperplatyrrhine (very broad nose)	>100	1.0	2.5

Table 2 showed the frequency and percentage of nose types found in Malay male according to the classification of nasal indices. In Malay male, mesorrhine type of nose was found in 67% and leptorrhine type of nose was found in 20% of the Malay population. The other types were found in the ranges between 0 to 10%.

Table 3.   Frequency and percentage of nose types found in Malay female according to the classification of nasal indices.

Types of nose in female	Nasal Index	Frequency	Percentage
Hyperleptorrhine (very fine nose)	<54.9	10	2.5
Leptorrhine (fine nose)	55.0-69.9	7	17.5
Mesorrhine (medium nose)	70.0-84.9	28	70.0
Platyrrhine (broad nose)	85.0-99.9	3	7.5
Hyperplatyrrhine (very broad nose)	>100	1	2.5

Table 3 showed the frequency and percentage of nose types found in Malay female according to the classification of nasal indices.

Table 4.   Types of nose found in male, female and combined Malay populations.

Types of nose	Male n (%)	Female n (%)	Combined n (%)
Hyperleptorrhine (very fine nose)	0 (0)	1 (2.5)	1 (1.25)
Leptorrhine (fine nose)	8 (20)	7 (17.5)	15 (18.75)
Mesorrhine (medium nose)	27 (67.5)	28 (70)	55 (68.75)
Platyrrhine (broad nose)	4 (10)	3 (7.5)	7 (8.75)
Hyperplatyrrhine (very broad nose)	1 (2.5)	1 (2.5)	2 (2.5)

Table 4 showed the types of nose found in male, female and combined Malay population. In Malay female, mesorrhine type of nose was found in 70% and leptorrhine type was found in 17.5% of the Malay population. The other types ranged between 2.5% to 7.5%. The prevalence of mesorrhine type among males (67.5%) and females (70%) in our study were not significantly different (p>0.05).

DISCUSSION

The mean nasal height and nasal width in males were 52.2 $\pm$ 5.3 and 39.7 $\pm$ 3.0 respectively while those of the females were 50.4 $\pm$ 9.7 and 36.7 $\pm$ 3.2 respectively. Although the mean values of nasal parameters of male subjects were higher than those of female subjects only the mean value of nasal width was found to be significantly higher in the male than in the female (p<0.001).

The mean values of nasal parameters in the study done by Ngeow et al (2009) on Malay population and Malaysian Indian population[4] were similar to our findings.

The morphological classification of the nose represented in our study as indicated in Table 4 showed the prevalence of mesorrhine nose type (with a nasal index of 70.0 - 84.9) in both male (67.5 %) and female (70 %) of young Malay adults. The second most common type was leptorrhine (with a nasal index of 55.0 - 69.9) which was also found in 20% of male and 17.5 % of female. The other types ranged between 0% to 10%.

According to Ngeow et al[4] the nose type in Malaysian Indian population was also mesorrhine or medium type. Also a study on the shape of nose of the Jingpo people in China by Li et al (2000) stated that the type of the nasal index is middle or mesorrhine with a value of 70.0 to 84.9 [5]. This showed that the predominant nose type in Asia is mesorrhine (medium type) and the similarity may be due to the fact that these people are sharing the same climate and geographical area. In the Albanian population the predominant nose type is leptorrhine (fine nose) based on the mean nasal index of 67.07 and 63.87 for males and females respectively[5].

The nasal index has been studied by several authors; these studies indicated racial and ethnic differences in nasal index among different populations. Most Caucasians are leptorrhine having long and narrow nose with the nasal index of 69.9 or less or they could be mesorrhine with an index between 70.0 and 84.9. On the other hand, according to Khrisnan and Kumar (2007), Negroids as well as Australoid tribes are platyrrhine (broad nose) with a nasal index of 85 or more[7]. In the present study the mean nasal index of Malay male and female were 76.7$\pm$ 9.1 and 74.6 $\pm$ 10.9 respectively under the category of mesorrhine (medium nose) type.

The nose is one of the best clues to racial origin (Madison, 2004). The nasal index is very useful in anthropology and it is one of the clinical anthropometric parameters recognized in nasal surgical treatment (Hansen and Mygind, 2002; Zankl, 2002). Nasal index is related to regional and climatic differences (Last, 1981). Various studies had indicated racial, ethnic and gender differences in nasal index among different populations [7,8].

The nose plays a role in both warming and moistening of the inspired air. As such, in colder and drier climates, the length of the nasal passage is increased and the base is narrowed, thus increasing the surface area and the period of time over which the inspired air is warmed and moistened[1]. For this reason it was thought that the shape of the nose in different ethnic groups had been adapted to the climate and environment to which they were being exposed. When conducting large population studies, the rhinologists may find the anthropometric measurements of nasal height, nasal width and nasal index to be a more relevant discriminator and is a better basis for assessment of normal nasal patency in nasofacial surgery[9]

CONCLUSION

The mean nasal index of Malay population was identified. The predominant nose type of Malay population falls within the mesorrhine nose (medium nose) type which was similar to findings of the previous studies done in the Asian population. The nasal width was found to be significantly higher in the male than in the female (p> 0.05). The findings of this study may contribute to satisfactory outcomes in cosmetic and reconstructive rhinoplastic surgery, designing of face masks, anthropology, and forensic medicine (especially in identifying the remains of the body) in the Malay population.

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RAPID ASSAYS TO SCREEN MARINE FLORA AND FAUNA FOR THEIR INHIBITORY ACTIVITY AGAINST ANTIMICROBIAL ENZYMES

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Abstract

The worlds land and sea represent a limitless reserve of natural, biological and potentially active useful pharmaceutical products. Renewed interest in drugs from natural reserves, advances in chemical separation and analysis have identified hundreds of unique exotic physiologically active substances with antimicrobial, anti-tumor and other potentialities more rapidly, from terrestrial plants, marine flora and various classes of marine fauna. Development of practical and rapid methods for detection of plant products with activity against infectious disease producing organisms is the need of the hour. Rapid assays for antiviral studies using isotopic reverse transcriptase, E. coli DNA polymerase and HBV DNA polymerase inhibition assays were standardized. Extracts of marine flora and fauna collected under the DOD National project were assessed. Of the extracts assessed for virus specific enzyme inhibitions, 24.35% possessed RT inhibition activity, 15.83% E. coli DNA polymerase Inhibition activity, 42.72% of 35 extracts tested possessed HBV DNA polymerase inhibition activity and 11.42% of 35 extracts tested possessed inhibition activity against all three enzymes tested. The great potential of ocean's flora and fauna is there to be used for its antimicrobial activity in general and antiviral activity in particular, which will suit our ever increasing need, is to be harnessed for the welfare of the human community at large.

Key words: HBV and *E. coli* DNA polymerase inhibition assay, Rapid antimicrobial assay, RT inhibition assay

INTRODUCTION

Relationship between man and plants has been very close throughout the development of almost all civilizations. Every tribe or race has had its own way of curing afflictions of disease which depends very much on the practice, belief and knowledge they possess. Besides chants, prayers and other practices, humans utilize various resources, especially flora and fauna around them to a greater extent to achieve this. The worlds land and sea represent a limitless reserve of natural, biological and potentially active useful pharmaceutical products. Renewed interest in drugs from natural reserves, advances in chemical separation and analysis have identified hundreds of unique exotic physiologically active substances with antimicrobial, anti-tumor and other potentialities more rapidly, from terrestrial plants, marine flora and various classes of marine fauna.

Preclinical studies on Spirulina, a unicellular cyanobacterium has shown to have several therapeutic attributes like cholesterol regulating, antiviral and anti-mutagenic properties[1]. Aqueous extracts of *Haslea ostreania* and *Polysiphonia denulata* from the Black Sea coast have shown to inhibit HSV in cell culture by demonstrating reduction in cytopathic effect caused by the virus [2, 3].

Inhibitory activity of marine algae were investigated and it was found that cyanovirin-N, a 11 kDa protein, from blue green alga irreversibly inactivated HIV and also aborted cell-to-cell fusion and transmission of HIV, due to its high affinity interaction with gp120 (4). Other cases of antiviral activity against HIV, HSV and other viral adsorption processes by marine flora and fauna have been reported [4, 5, 6].

Development of rapid methods for detection of infectious disease producing agents is the need, and trend of the hour, for early diagnosis. Many such methods have found success in recent times. In the present study we outline our experience in standardization and evaluation of few such methods, viz., ATP reduction assay for antibacterial testing, and reverse transcriptase, E. coli and HBV DNA polymerase inhibition assays for antiviral testing, that have been adapted to evaluate the antimicrobial potentials of natural products in general and marine flora and fauna in particular.

MATERIALS AND METHODS

The work on standardization and evaluation of rapid assays for marine flora and fauna was carried out in the Microbiology Department, Dr.ALPGIBMS, University of Madras, Chennai -600 113. Extracts of marine flora and fauna collected under the Department of Ocean Development National project were assessed. A cohort of samples showing positive and negative HBsAg binding activity was picked randomly and was included in this study.

Isotopic Enzyme Assays

A total of 221 extracts from marine flora and fauna were tested. Three different isotopic assays were standardized to measure reverse transcriptase (RT), *E. coli* DNA polymerase and HBV DNA polymerase inhibition properties of the extracts from the marine organisms. The enzymes assessed for the study are most required for the replication of the respective microbial agents.

Standard Isotopic RT-Inhibition assay:

It was carried out as described by Ono *et al*[7]. The assay was carried out establish the reverse transcriptase enzyme inhibitory activity of the marine extracts. The assay was performed in a reaction mixture that contained the following in a final volume of 50 µl. Tris HCl 50 mm, dTTP 1.5 mM, Poly(rA)(dT)$_{12-18}$ 10 µg/ml, BSA 10 µg/ml,

[3]H-TTP 0.5 mM, KC1 75 mM, DTT10 mM, $MgCl_2$ 3 mM and MMLV-RT 1 Unit.

In the test, a known concentration of extract was added to the reaction mixture and incubated. Similarly a positive control (0.1 µg/ml AZT), a negative control (distilled water) and a solvent control (solvent used to extract) were set up. Each set of test and controls were run in triplicate. After 30 minutes the reaction was stopped by adding 10µl of ice cold EDTA (0.2 M) and immersing the mixture in ice immediately and simultaneously processed for radioactivity measurement.

E. coli DNA polymerase inhibition assay:

The procedure followed was as described by Ono *et al*[7]. The assay was carried out establish the *E .coli* DNA polymerase enzyme inhibitory activity of the marine extracts It was performed in a reaction mixture containing the following in a final volume of 50 µl: Tris HCI (pH 7.5) 50 mM, DTT 5 mM, Tritiated TTP 10 pM, dCTP, dATP, dGTP 10 pM each, BSA 200 gg/ml, MgC12 5 mM, KCI 100 mM, Activated calf thymus (CT) DNA 2 pg/ml and *E coli* DNA polymerase-I 1 Unit. Activated CT DNA was prepared as described by Goulian and Heard[8].

After the addition of the enzyme, the reaction mixture was incubated at 37°C/30 minutes. This acted as the negative control. In the test a known concentration of the extract was added and incubated. Both the test and control reactions were stopped by adding 20 µl of 0.2 M EDTA, after which they were spotted onto a Whatman DE81 filter paper discs and processed for radioactivity measurement. Each batch of test and control were run in triplicates.

HBV DNA polymerase inhibition assay:

The assay was carried out establish the HBV DNA polymerase enzyme inhibitory activity of the marine extracts

Virus preparation: Pretritrated HBsAg and HBeAg positive serum was centrifuged at 35,000 rpm for 3 hrs using SW41 rotor. The pellet was washed in PBS and again centrifuged at 35,000 rpm. The pellet got in this was dissolved in PBS and stored at 20°C.

The procedure followed was as described by Lofgren *et al*[9]. Prior to the assay, the virus preparation was pretreated with 1/8 volume of 2% mercaptoethanol and 10% NP_{40} for 15-30 minutes at room temperature. Aliquots of 25 µl were incubated at 37°C/3 hours together with 25 µl reaction mixture containing Tris HC1 (pH 8.0) 100 mM, $MgCl_2$ 20 mM, KCl 200 mM, dNTPs 10 mM each and 3H dTTP 10 mM and 25µl of DNase and RNase free water, or a solution of the substance to be studied. After incubation 10 µl of 0.2 M EDTA was added and spotted onto a Whatman DE81 filter paper discs and processed for radioactivity measurement.

All the chemicals for the three assays were procured from Sigma Chemicals, St.Louis, USA.

Processing for radioactivity measurement:

After termination of the reaction in the above isotopic assays, DNA was precipitated using 10 µl of cold 5% TCA and 0.1 M sodium pyrophosphate. 50 µl of the reaction mixture was then filtered through Whatman DE51 filter paper. The filter paper was later washed thrice in 3 ml of 5% TCA and, three times in absolute alcohol. The filters were then air dried, and radioactivity measured using a toluene-based scintillation cocktail[7]. A reduction of 50% or more in the radioactive count in comparison to the control was taken as evidence of inhibitory activity.

RESULTS

Isotopic Enzyme Assays

Of the 221 extracts tested for RT inhibition 24.89% showed the activity. 23.47% of flora and 26.02% of fauna tested were found to possess the activity with an MIC ranging between 100 - 1600µg/ml (Table 1).

221 extracts from marine flora and fauna were tested for *E. coli* DNA polymerase inhibition. Of them 15.83 % showed the activity with MIC ranging from 100 - 1600µg/ml (Table 2). The inhibitory activity was observed in 20.41% of flora and 12.20% of fauna tested.

Thirty five extracts that showed *E. coli* DNA polymerase activity were tested for their HBV DNA polymerase inhibitory potentials. Of them, 42.72% possessed the activity with MIC ranging from 250 - 1000µg/ml (Table 3).

On comparison of the enzyme inhibitory potentials of these 35 extracts, four of them possessed all the three, two of them possessed RT and E. coli –DNA polymerase inhibitory activity, 12 of them possessed *E. coli* and HBV DNA polymerase inhibitory activity and 17 of them possessed only *E. coli* DNA polymerase inhibitory potential (Table 4).

Table 1: Isotopic RT inhibition assay

	Flora (%) (n=98)	Fauna (%) (n=123)	Total (%) (n=221)
Isotopic RT inhibition	23 (23.47)	32 (26.02)	55 (24.89)
MIC range µg/ml	100 to 1600	100 to 1600	

Table 2: *E. coli* DNA polymerase inhibition of marine organisms

	Flora (%) (n=98)	Fauna (%) (n=123)	Total (%) (n=221)
***E. coli* DNA polymerase inhibition**	20 (20.41)	15 (12.20)	35 (15.83)
MIC range µg/ml	100 to 1200	100 to 1600	

Table 3: HBV-DNA polymerase inhibition of marine organisms

	Flora (%) (n=20)	Fauna (%) (n=15)	Total (%) (n=35)
HBV DNA polymerase inhibition	9 (45.00)	7 (46.60)	16 (42.72)
MIC range µg/ml	250 to 1000	500 to 1000	

Table 4: Comparison of HBsAg binding and DNA polymerase activity

RT, *E. coli* DNA polymerase & HBV DNA polymerase inhibition positive	RT, *E. coli* DNA polymerase inhibition positive	*E. coli* DNA polymerase & HBV DNA polymerase inhibition positive	Only *E. coli* DNA polymerase inhibition positive
4 (11.42%)	2 (5.71%)	12 (34.28%)	17 (48.57%)

DISCUSSION:

Natural product research is turning to marine flora and fauna as a source of natural products and is currently in preclinical and clinical evaluation. Numerous traditional medicinal plants have been reported to have strong antimicrobial activity and have been used to treat animals and humans suffering from infectious diseases. Rapidity in search for newer products from natural sources has reaped its benefits.

Many traditional medicinal plants have been reported to have strong antiviral activity and some of them have already been used to treat humans and animals[10, 11, 12, 13]. There are also many groups marine flora and fauna, including cyanobacteria, showing antiviral, anti HSV, anti HIV and anti influenza activity [4, 5, 6].

Inhibition of RT by potential antiviral substances has been analyzed by several methods. The isotopic RT inhibition assay uses tritiated thymidine triphosphate which is incorporated into the template during the reaction. The difference in the count after addition of the compound reveals the level of inhibition of RT (8). Colourimetric assays are similar to the isotopic method except that RT activity is measured by incorporation of biotin digoxigenin labeled dUTP which is estimated photometrically by immobilizing the labeled DNA after reverse transcription. This technique has been designed as an ELISA by Eberle and Seibl [14].

The isotopic RT inhibition assay is a highly sensitive and quantitative method. Ono et al[7] studied RT inhibition activity of various Asian and Japanese herbal extracts and reported that 19 out of 40 extracts tested were active at an MIC ranging from 100 to 500 µg/ml.

Inhibition of RT by flavonoids were also studied by Ono et al (7) and Spedding et al (15). Higuchi et al[16] reported the RT inhibition activity of anthraquines on HIV RT and RAV2 RT and MIC ranged from 7.7 - 300 µg/ml. In our study the inhibition levels varied between 100-1600µg/ml[17], which correlates well with other studies. Much lower inhibition levels could have been achieved, had been all the extracts were prepared in our lab, which would have overcome the loss of activity that occurred during the transport and other related factors.

Hepatitis B has a major implication to both the developed and developing world because of millions of chronic virus carriers, besides symptomatic disease population. Despite the introduction of effective HBV vaccines, there is a need for effective therapy since the vaccines are of no use to symptomatic and asymptomatic HBV carriers. The lack of tissue culture systems for HBV propagation is a handicap in the search for anti-HBV agents with potential use against the different syndromes caused by HBV. The search for active compounds against HBV by target enzyme screening is considered as a preferred strategy. Since replication of hepadna viruses involves a viral DNA polymerase containing both DNA dependent and RNA dependent activity, this polymerase is a potential target for chemotherapy against hepatitis B. Thus investigators have used DNA polymerase inhibition techniques and RT-inhibition techniques as methodologies of evaluating potential anti-HBV compounds[9].

Of the 35 extracts which have shown *E. coli* DNA polymerase inhibition, only 16 possessed HBV-DNA polymerase inhibition property, some of them also possessing HBsAg binding property. While confirmation of these activities are

still required either by animal models like DHBV infected chronic ducks[18], WHBV infected chronic carrier wood chucks[11] and more recently HBV infected cell lines.

On confirmation of the drug potentials against HBV by the above models, they are to be subjected for toxicological studies, and before being made as candidate preparations for Phase I and Phase II clinical trials in human beings subject to ethical clearance.

In total the standard isotopic assays are highly sensitive and have been able to detect antiviral activity at very low concentrations. One should also take to consideration the labour-intensiveness and restrictions that are inevitable while using radioactive material. In addition the requirement of a liquid scintillation counter for estimating the amount of tritiated thymdine incorporation, an instrument that is quite expensive, should also be noted. Presently, the use of colourimetric assays has gained prominence, which is safe, and sensitive, to evaluate the enzyme based assays to study antiviral activities.

Advances in rapid assays and standardization of newer techniques have reached great heights as the advance in science is onto to a great leap. Newer rapid techniques that are reliable and efficient are now available. In addition, bioinformatics is playing a great role in quicker identification of the specific components/compounds with potential activity. Antimicrobial research is entering an era of the biochip technology, where the efficacy of a plant product against numerous organisms could be identified in a very short time period. In a few years to come identification of newer antimicrobials will overcome the draw backs of resistance to antimicrobials by the evolving pathogens, with great ease.

CONCLUSION

The rapid assays employed to assess the antimicrobial enzyme activities can be used as trust worthy methods to assess the antiviral properties of only marine flora and fauna, but for any plant material or pure compounds. It can be modified to use to non-isotopic measurement protocols instead of the radioactive ones used in the study.

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UNDERGRADUATE MEDICAL EDUCATION THROUGH DISTANCE LEARNING – IS IT POSSIBLE?

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Abstract

Concept: Undergraduate medical students can be taught entirely through distance learning.

Background: Undergraduate medical education (UGME) is currently available predominantly to an elite minority of students with resources. There are probably many students who might have become excellent doctors, if only they had had an opportunity to undertake a flexible and less expensive course.

Proposal: In UGME, there is a tendency to underestimate the capabilities of medical students and overemphasize the importance of teachers. Educators of late consider medical students as adult learners capable of managing their learning needs; teachers are facilitators guiding them in the right direction. If there is one branch of study eminently suited to distance learning, it is probably UGME. The teaching program should be planned meticulously and executed with care. With the support of available resources in information technology, it is time to consider UGME through distance learning.

Why: A course in distance learning will be inexpensive. It will foster lifelong learning because self-directed learning was started in the beginning. A large number of students will benefit; they will hopefully serve their communities better than doctors from mainstream medical schools.

Discussion: Harden's CRISIS criteria for CME, suit the planning of this course. The advantages and disadvantages, educational strategies for teaching-learning and assessment, selection of students and faculty, mentoring and feedback for this course will be discussed.

Conclusion: With meticulous planning, IT support and help from medical schools of international standing, distance learning in UGME is an inexpensive, feasible option benefiting a large number of students.

Key words: undergraduate medical education, UGME, distance learning

INTRODUCTION

Can undergraduate medical students be taught entirely through distance learning? I believe they can be. I hope that after reading this article, you will be convinced.

I have a friend whom I have known since primary school. She was very keen on becoming a doctor.

She is very intelligent and has the attributes needed for an excellent doctor and teacher. However, due to family commitments, she could not pursue her dream. She eventually did a doctorate in economics and became a "real doctor".

There are probably many such people out there who might have become excellent doctors and served the community, if only they had an opportunity to undertake a flexible and less expensive course, at their own pace. UGME is currently available predominantly to an elite minority of students who have the resources. Not all of them may turn out to be "good" doctors or lifelong learners.

It is my observation that in UGME, there is a tendency to underestimate the capabilities of medical students and overemphasize the importance of teachers. It is gradually changing in some parts of the world. I believe that with or without the teachers and sometimes despite the teachers (!), committed medical students will be able to become "good" doctors by self-directed learning!

If there is one branch of study eminently suited to distance learning, it is probably UGME, provided it is planned meticulously and executed with care. Currently, distance learning is available only for postgraduate courses in medicine and medical education.

Over the past few decades, medical educators have started considering medical students as adult learners, capable of managing their own learning needs.[1] Medical teachers are now facilitators, guiding them in the right direction. Students are expected to become lifelong learners after completing the course. Medical educators have also started to believe that learning in ambulatory care settings in the community rather than in hospitals is probably better.[2, 3] With this in the background and with the support of ever increasing resources in information technology (IT), it is time to consider UGME through distance learning.

Why:

A course in distance learning is likely to be considerably less expensive than conventional courses. It will probably attract committed learners and an experienced and committed team of international faculty. It will foster lifelong learning,[4] having initiated truly self-directed learning right from the start. It will be available to a large number of students who will hopefully serve their communities better than doctors graduating from mainstream medical schools.

Disadvantages and solutions:

The initial planning and execution will be time consuming and expensive. However, once the basic IT infrastructure has been planned, changes may be easier to implement. Students may miss having direct contact with each other and the teachers. Telephone or web-conferences can provide the direct student-student and student-teacher interaction that is needed.

How:

Harden's CRISIS[5] (acronym for convenience, relevance, individualization, self-assessment, interest, speculation and systematic) criteria for CME may be used effectively for planning this course.

Prerequisites for students:

The students should have at least 12 years of education in school. A graduate degree may be an added advantage. Proficiency in academic English, basic mathematics, biology, physics and chemistry is required. A screening test in academic English and premedical subjects may be administered

online before the start of the course. A specific test score or percentile will be a prerequisite to joining the course. Psychological evaluation may be done through a web-conference. Once distance-learning in UGME in English is firmly established, medium of instruction in other languages can be offered.

Faculty:

Faculty may be able to work from their homes. Retired doctors and committed medical teachers may also be recruited from all over the world. All the faculty should go through the online staff development programme before they start functioning as facilitators for distance learning.

Educational strategies: [6, 7, 8, 9, 10, 11, 12, 13]

We could follow the SPICES model as shown below for an outcome-based education:

1. Phase 1 for predominantly basic medical sciences with a system-based approach, problem-based learning (PBL), and early clinical exposure, and
2. Phase 2 for predominantly clinical sciences in an ambulatory setting. It will be a spiral course with horizontal and vertical integration of basic and clinical sciences.
3. Elective study periods could be incorporated in both phases.

The course may be interspersed with integrated projects in both the phases. During Phase 1, one of the projects could be follow-up of a pregnant mother from the first booking through pregnancy and delivery and subsequently, following up the child till he/she is at least two years old. The pregnant mother could be a family member, neighbor or even themselves. Attending the ultrasound sessions and viewing the unborn fetus in varying stages of development will help the students to understand embryology better. Following up the mother will help them understand the physiology of pregnancy and labor. Following up the child

later will help them understand the postnatal development of normal children. These projects will underscore the relevance of basic medical sciences to clinical practice.

The objectives of each course or module should be clearly spelt out. We should remember that we are not aiming to produce specialists such as anatomists, physiologists, pediatricians or surgeons, but generalists ("a basic doctor") who will be able to handle simple cases and recognize and refer serious problems on time to the specialists.

Online courses in communication skills, ethics, professionalism and research methodology should be introduced from the first year with inclusion of a simple research projects based in the community in both phases.

IT requirements would include a website with an extensive database of books and journals, virtual PBL rooms, access to triggers for basic and clinical science students, chat rooms for discussion between students and also with teachers, interactive video-lectures, online quizzes, online assessment for end of module and summative examinations and feedback, regular feedback and mentoring online, and a virtual tour of the facility with user-friendly instructions. With the IT resources available currently, the possibilities are endless.

Phase 1:

Students may be provided clinical, paper-triggers for which they work out their own learning needs online. Small groups of compatible students, in compatible time zones will come together during PBLs or study on their own. At the end of each system, they will appear for the examinations online, receive feedback, progress to the next system or repeat the modules and the examinations. They should be directed to attach themselves to medical practitioners of their choice and have

clinical exposure to cases relevant to the system of their study, for a specified number of hours each week. Almost all of us are exposed from childhood to maternal and child health (MCH) clinics, general practitioners (GPs), pediatricians and other healthcare professionals. We could leave the choice of venue for the clinical exposure to the students. They could choose them on their own or with the help of their families and or friends.

The students should also be exposed to videos on communication skills and have online sessions with facilitators and other students. At specified times, at three different time zones, lectures may be given online by content experts to introduce new or difficult concepts. The students could go into an online discussion room after the lectures, to clarify their queries with the teachers.

The students should be provided downloadable guidelines listing all the competencies required, for each of the modules which they should complete and submit before the comprehensive assessment. Facilitators should also have access to these guidelines.

Assessment:

Phase 1 students should submit a community project online at the end of the basic sciences course as part of their assessment. Assessment should be focused less on recall and more on analysis and problem solving skills. There should be a comprehensive assessment of all modules at the end of Phase 1 with feedback and progression or repetition of selected modules.

Phase 2:

The students proceed to Phase 2 after completing the individual and comprehensive assessments of Phase 1. Before exposure to actual patients, they should be taught history taking online through virtual cases, and patient-management-problems[14] using clinical scenarios. After mastering these, the students could choose their own clinical settings and teachers for the various branches of clinical medicine required for the course for the clinical clerkships. Clinical PBL sessions with basic science input should continue online all through the clinical years. Elective study periods should be included in both phases.

The students should be provided downloadable log books and portfolios listing all the competencies required, for all the preclinical and clinical clerkships which they should complete satisfactorily and submit before the comprehensive assessment. The clinical teachers chosen by the students should also be provided with this material for their reference. The logbooks should be notarized by the doctors, nurses and paramedical personnel. Submission of satisfactorily completed logbooks and portfolios should be a prerequisite to sit for the comprehensive, summative assessment.

Assessment:

Knowledge in theory and history-taking may be assessed online. Clinical examinations should be arranged using simulated or actual patients annually at specified centers. A final comprehensive clinical examination should also be organized at the end of the course in certain centers. The clinical examinations should include commonly seen patients from the wards and clinics. The examiners should keep in mind the fact that patients do not come to doctors with "standardized" symptoms or signs. The examiners could be an international panel or from the country of origin of the students.

Mentoring and support:

Throughout the course, students should be assigned to mentors online with whom they may maintain contact through email or chat rooms online at the website by prior appointment. Mentoring is of paramount importance as the whole course is through

distance learning and students would need support and counseling on many issues from the faculty.

FEEDBACK:

Feedback should be provided promptly after each assessment and also taken from students regarding all the courses to help improve future courses.

CONCLUSION:

It is my observation that it is difficult to introduce even minor changes in medical education.

Here, I have proposed a sea change! I believe that with the help of medical schools of international standing, distance learning in UGME could become a feasible venture at low cost, which would benefit a large number of committed students worldwide. It is possible that this may become the mainstream education for UGME eventually and expensive education in medical schools may become outdated.

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KNOWLEDGE AND AWARENESS OF BREAST CANCER AMONG RURAL WOMEN IN PERAK.

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ABSTRACT
Breast cancer is a major global health problem and the leading cause of death among women of all ethnic backgrounds. In Malaysia the incidence of breast cancer among women is 1: 19. Around 5,000 Malaysian women are diagnosed with breast cancer every year, most of them aged between 30 and 60 years where, nearly half of those affected are under 50-years of age. In Malaysia, screening for breast cancer is mainly based on clinical examination, mammogram and ultrasound studies for most of the population. Based on radiological investigations the patients are then referred for Fine Needle Aspiration Cytology (FNAC) /or biopsy for final diagnosis. Most women over 40 years of age undergo mammogram screening so there has been early detection of cancer of breast in the older age group. Mammogram is not advised in younger age groups as lesions will be difficult to identify in dense breasts. We did a cross sectional study among 139 rural women in Perak. The participants were chosen randomly from the rural areas of different villages. We used a pretested self-administered questionnaire. The questionnaire comprised of eight questions based on knowledge of breast cancer and few more questions related to imaging of breast. The questionnaire was distributed to women between the ages 20- 60 years of all three major ethnic groups in Malaysia, namely Malays, Chinese and Indians. The mean age of the participants was 47.9. The Indians comprised of (59.7%) of participants. Malays (25.2%) and Chinese (15.1 %). Just below half of the participants were of secondary educational level (44 .6%) Most of them were married (63.3%). Almost half of them were employed (48.9%). The percentage of women who had a family history of breast cancer accounted for 11.5%. Among the three major races the Chinese had more screening done compared to the Malays and Indians (P value 0.003). 51.1% of women showed poor knowledge of breast cancer and 19.4 % had no knowledge of cause of breast cancer. Among the several reasons given for not having a mammogram, 40.8 % of participants said that it was not advised. The major source of information was (TV, Magazines, papers) 63.4 % and (Friends / Relatives) 30.6%.

Key words: Mammogram, Self-breast Examination [SBE]

INTRODUCTION

Breast cancer is now being diagnosed among younger women unlike in earlier days when cancer was detected primarily in women above 50 years of age.

Reluctance of having breast examined by medical personnel and ignorance of the proper method and frequency of doing SBE are factors that can delay the detection breast lumps in younger women. In addition women also do not present themselves for regular mammogram examinations.

In Perak State in Malaysia, amongst the five common cancers , cancer of the breast is of the highest incidence out of the five most frequent cancers among females , Perak , 2007 [1]

In Malaysia the National Cancer Registry reported that Breast Cancer constitutes 31 % of all female breast cancers in 2003; there was an increase to 32.1% in 2007 [2]
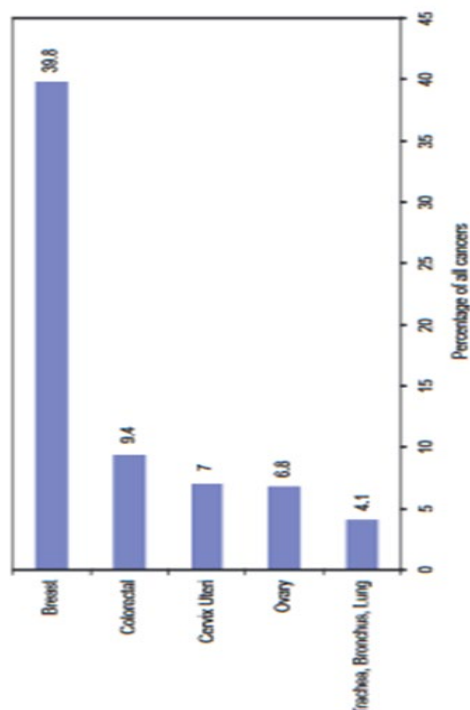
Fig 1, The five most frequent cancersamong females in Perak Malaysia, 2007

MATERIALS AND METHODS

This is a cross sectional survey among 139 rural women in Perak. The participants were chosen randomly from the rural areas of different villages. We used a pretested self-administered questionnaire. The questionnaire comprised of eight questions based on knowledge of breast cancer and few more questions related to imaging of breast. The questionnaire was distributed to women between the ages 20- 60 years of all three major ethnic groups in Malaysia, namely Malays, Chinese and Indians.

The participants were chosen randomly from the rural areas of Kampong Tawas in Ipoh, Kampong Serani, Batu Gajah; Kampong Bahru, Manjong; Kampong Malim Nawar and Ayer Tawar in Sungei Siput. The questionnaire comprised of eight questions based on knowledge of breast cancer.

The questions were, causes of Breast cancer, incidence of Breast cancer in women, detection of breast cancer, frequency of self-breast examination, traditional methods to cure Cancer of Breast, does Breast cancer affect men, and are all breast lumps considered cancers and finally the source of information.

The questions based on Imaging of breast were if participants have had an Ultrasound of breast done and whether they have had a Mammogram done (women above 40). If mammogram was not done – the reason why a screening mammogram was not done

RESULTS

TABLE 1: sociodemographic factors distribution in relation to Knowledge of women about breast cancer according to Self-Breast Exam SBE. (Chi square, P is significant ≤0.05)

Factors	Knowledge about BC according to SBE		P value*
	Good	Poor	
Race			0.75
Chinese	42.9	57.1	
Indian	44.6	55.4	
Malay	37.1	62.9	
Education Category			0.25
Low Edu	40	60	
High Edu	51.7	48.3	
Age Category			0.04 *
20-39	47.2	52.8	
40-50	54.5	45.5	
>50	30.5	69.5	

TABLE 2: sociodemographic factors distribution in relation to Knowledge of women about breast cancer according to the cause. (Chi square ,P is significant ≤0.05)

Factors	Knowledge about BC according to cause %		P value*
	Good	poor	
Race			0.70
Chinese	57.1	42.9	
Indian	47	53	
Malay	48.6	51.4	
Education Category			0.11
Low Edu	45.5	54.5	
High Edu	61.1	37.9	
Age Category			0.63
20-39	55.6	44.4	
40-50	47.7	52.3	
>50	45.8	54.2	

We tested whether, the knowledge about breast cancer according to the self-breast examination (SBE) is different with different sociodemographic factors of the participants like the race, the education and the age category. This analyses showed that, only age category of the participants was a possible significant factor which could be associated with the knowledge, P 0.04.　　(Table 1) We also tested whether, the knowledge about breast cancer according to the cause is different with different sociodemographic factors of the participants like the race, the education and the age category. This analyses showed that, there was no significant possible association between the knowledge and all these independent sociodemographic factors. (Table 2)

The mean age of the participants was 47.9. The Indians comprised of (59.7%) of participants. Malays (25.2%) and Chinese (15.1 %). Just below half of the participants were of secondary educational level (44 .6%) Most of them were married (63.3%). Almost half of them were employed (48.9%). The percentage of women who had a family history of breast cancer accounted for 11.5%. Among the three major races the Chinese had more screening done compared to the Malays and Indians (P value 0.003). 51.1% of women showed poor knowledge of breast cancer and 19.4 % had no knowledge of cause of breast cancer. Among the several reasons given for not having a mammogram, 40.8 % of participants said that it was not advised. The major source of information was (TV, Magazines, papers) 63.4 % and (Friends / Relatives) 30.6%.

DISCUSSION

Most of the participants had no family history of breast cancer (88.5%). Almost all of them have heard about breast cancer (95%). When they were asked what the cause of breast cancer was, 41% of them said family history whereas, 31.7% said food was a factor, 19.4% did not know the risk factors

for developing breast cancer. 46.6 % of women thought that all breast lumps are cancerous – this may be a factor is seeking medical advice late. This in addition to the Asian taboo of exposing the breasts to others may also be a strong deterrent.

A worrying fact is that 58.9 % of women did not have correct information about Self Breast Examination.

In Malaysian context there are no statistics to suggest that self and clinical breast examinations resulted in increased number of biopsies. This may be attributed to the fact that any breast lump/ detected is further investigated by Ultrasound and if required a mammogram   before biopsy is performed.

In one large population based study involving 388,535 women. A regular self-examination or clinical examination for early detection of breast cancer concluded that there was no beneficial effect of screening in terms of improvement in breast cancer mortality. [3]

In our study among rural women in Perak, 51.1% of women showed poor knowledge of breast cancer, 19.4 % had no knowledge of cause of breast cancer. About 58.9 % of women did not do / know the correct method of doing self-breast examination. One study concluded that in a large population based study involving 388,535 women there was no beneficial effect of screening in terms of improvement in breast cancer mortality

" A review of Breast cancer in Malaysia by by one researcher – it was noted that Malaysian women had poor knowledge of risk factors , symptoms and methods of early detection of breast cancer leading to late presentation. [4]

In our study 51.1 % had poor knowledge of risk factors. The better performance of the women in Perak can be attributed to [1] most of the participants were educated – 76.3% -secondary education [2]

63.8 % had access to TV, magazines and other electronic media.

Similarly, one study concluded that 71 % had poor knowledge of risk factors for breast cancer. [5]

In the current study the analyses also showed poor knowledge and practice of self-breast examination which goes in similar to other previous studies in which it was noted that a high number of students were aware of breast cancer but do not perform self-breast examination. [6]

Another study by UNIMAS :- Knowledge and practice of Breast self-examination among female undergraduate students in Universiti Malaysia Sarawak (UNIMAS 2010) stated that in the study of 133 students only 38.3% knew that self-Breast examination should be performed monthly , The study concluded that knowledge and practice of self-breast examination among female undergraduate students in UNIMAS was poor. [7].

Last but not least a similar findings were detected in different studies in terms of poor knowledge on breast cancer and poor self-breast examination practices. [8,9,10]

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FINAL YEAR STUDENTS' PERFORMANCE IN COMMUNICATION SKILLS OSCE IN A MALAYSIAN MEDICAL SCHOOL

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Abstract:
Introduction: The Royal College of Medicine Perak under Universiti Kuala Lumpur started its own undergraduate medical degree programme in 2007. As part of the review and evaluation of communication skills (CS) training, the performance of the two pioneer batches of final year students in CS Objective Structured Clinical Examinations (OSCEs) stations in the 2012 and 2013 were analysed.
Methods: The CS OSCE stations were analysed based on the percentage of students obtaining a satisfactory performance in each CS component. Overall performance in each CS component was considered satisfactory, if ≥ 50% of students achieved satisfactory performance or unsatisfactory, if < 50% of students achieved satisfactory performance. The two cohorts were compared for any significant statistical difference ($p < 0.05$) in their performance.
Results: Satisfactory performance was obtained in basic CS (courtesy, appropriate non-verbal and verbal CS), stating intention of session, recognizing patient's cues, checking and addressing patient's perceptions and concerns, checking patient's understanding, breaking bad news and maintaining a professional attitude. The performance was unsatisfactory in assessing prior knowledge, discussing patient management and checking patient's coping skills. Both the two cohorts' performance did not differ significantly.
Conclusion: Overall the students' performance was satisfactory except for assessing prior knowledge, discussing management and checking patients' coping skills.
Key words: Communication skills, OSCE, medical students, Malaysia

Introduction

Communication skills (CS) is an important core clinical skill taught in medical school. Evidence shows that patients' complaints including malpractice allegations are often a result of poor communication rather than clinical incompetence.[1,2,3] There is extensive evidence on the positive effects of CS training such as an improved ability of medical students to interview and gain information from patients.[4] A study by Yedidia et al found that CS training significantly improved third-year medical students' overall communications competence including patient assessment, negotiation, shared decision making and relationship building skills.[5] Positive health outcomes are also related to the quality of clinical communication.[6] In Malaysia, a nationwide survey on the views of Malaysian interns and their supervisors had indicated that the undergraduate training in information giving, breaking bad news and dealing with angry / difficult patients was inadequate.[7]

In University Kuala Lumpur Royal College of Medicine Perak, Malaysia (UniKL RCMP), basic CS (courtesy, non-verbal and verbal CS, listening skills, patient-centered consultation) was taught from Year 1. In the first clinical year (Year 3), students learned skills in information gathering and information giving using role plays and through real patient encounters. Each student was video-recorded on how they interviewed a patient and self-assessed their performance based on a checklist provided in the students' course handbook and also received feedback from a tutor and their peers.

In the final two clinical years, students had role play sessions using scenarios based on more complicated cases including breaking bad news, dealing with angry patients and ethical issues. Students also had opportunity to interview a terminally ill patient and their caregiver and then reflect upon and present their encounter.

Assessments on CS were in the form of summative OSCEs at the end of Years 1, 3, 4 and 5 and formative assessments during CS teaching in Years 3 and 4.

In implementing the new medical degree programme RCMP teachers went through a Teaching and Assessment Workshop in November 2007. Subsequently, another Teaching the Teachers course was organized for new tutors in December 2009. CS training was a part of both of these workshops.

Feedback from the pioneer batch of students indicated that they found the CS training helpful and they were more confident in their CS, especially in basic CS, gathering and giving information. However 16% and 19% of students said that they failed to achieve the skills in breaking bad news and in dealing with difficult/angry patients respectively.[8]

As part of an objective review on the current undergraduate CS training, the actual performance of the first two batches of medical students in their final year summative CS OSCE stations were evaluated. This article reports the findings of the students' performance in the final year summative CS OSCE stations for the first two batches of graduates from the MBBS UNIKL programme.

Materials and Methods

Prior approval was obtained from the Dean, Faculty of Medicine, UNIKL RCMP. All the original marking scripts for the final year CS OSCE stations (for 2012 and 2013) were compiled, entered into a computerized database and analysed.

The two final summative CS OSCE stations were explaining to a standardized patient about her HIV (Human Immunodeficiency virus) positive blood test results (2012) and explaining imaging results confirming metastasis to the liver in a standardized patient with a history of colon cancer resected upon successfully 3 years ago (2013).

The OSCE assessed the competence of students in the following communication skills components:

1. Basic CS (courtesy, appropriate non verbal, verbal CS)
2. Stating intention of session
3. Assessing prior knowledge
4. Breaking bad news
5. Recognizing patient's cues
6. Checking and addressing patient's perception and concerns
7. Checking patient's coping skills
8. Checking patient's understanding with opportunity for clarification
9. Discussing management with the patient
10. Maintaining a professional attitude

For each CS component, the examiner based on the student's performance, had to circle the score under one of three columns in the marking

checklist: satisfactory, not satisfactory or not done. The percentage of students obtaining satisfactory scores for each CS component in the marking checklist was calculated. Overall performance in each CS components were categorized into unsatisfactory or satisfactory based on the proportion of students who obtained satisfactory performance i.e. unsatisfactory if less than 50% of the students obtained satisfactory scores or satisfactory if 50% or more of students obtained satisfactory scores. The results for both batches of graduates were compared and analyzed using chi square test to discern if there was any significant differences (p value was fixed as < 0.05).

Results

There were 111 and 104 students in the 2012 and 2013 batches respectively**.** The results obtained are shown in Table 1. The majority of the students had satisfactory performance in all CS components except assessing prior knowledge, checking patient's coping skills and discussing management with the patient (see Table 1). There were no significant differences in the components for both the cohorts of students, which show that training and performance were uniform for both the groups.

Examiners' comments included students' poor knowledge of the conditions used in the OSCE scenarios and students not fully exploring the patient's concerns. Overall, 68.5% (76 out of 111 students) in 2012 and 82.7% (86 out of 104 students) in 2013 passed the CS station. The difference in pass proportion was not statistically significant. There was improvement in performance of students in 2013 but this was not statistically significant.

Discussion

CS is an important clinical skill for a medical graduate. The skills are used in daily encounters with patients and their families. These skills include basic CS (courtesy, non-verbal and verbal CS), skills in information

gathering, information giving and breaking bad news. A very high proportion of students acquired satisfactory basic communication skills and skills in breaking bad news (more than 75% in both batches of graduates).

However performance in certain skills was unsatisfactory such as assessing prior knowledge which was taught in the early clinical year (Year 3) under information giving but poorly performed with less than 50% attaining satisfactory performance in both batches of graduates. An analysis of the 2013 graduates' performance in their Year 3 CS OSCE station on information giving showed that 61.5% of students attained a satisfactory performance in this same component (assessing prior knowledge). It appeared that some skills in information giving were forgotten by the time the students entered their final year.

Students in both batches also performed poorly in components such as checking patient's coping skills and discussing management with the patient. This was consistent with the examiners comments on students' poor knowledge of disease conditions in OSCE which would affect management. In breaking bad news (using appropriate lay language, gently and in stages); 86% (2012) and 79.8% (2013) of students attained a satisfactory performance. This was consistent with 2012 survey findings whereby 16% of students said that they failed to achieve the skills in breaking bad news.

Students in all clinical postings had the opportunity to interview patients and to practice their skills in information gathering. Students however lacked opportunity (other than role plays / tutorials) to practice their skills in information giving and in managing patients. More opportunity to practice or perhaps a revision practice session in the final year focusing on the skills found deficient could improve their performance. A study by Kei Mukohara et al found that a short

intensive two-day small group seminar helped medical students improve communication skills.[9]

There were no significant differences in proportions of students who were performing satisfactorily in the two years. This shows that there was uniformity in training, assessment and performance of students of both cohorts. Factors such as pressure of time in OSCEs and the emotional pressure of final year examinations should also be considered as a reason for the average and below average performances in certain CS components besides a knowledge gap and a lack of opportunity to practice certain skills.

There was an improvement in performance of students in 2013 even if the improvement was not statistically significant. This improvement can be attributed to the continuous training programs which were conducted for the training lecturers.

Conclusion

Overall the students performed well in basic CS, in breaking bad news and most of the components but less than satisfactory in assessing prior knowledge, assessing coping skills and discussing management. Students who lacked knowledge of disease conditions in scenarios, contributed to the poor performance in discussing management. More opportunities to practice information giving for example on simulated patients need to be created for students.

Table 1: Percentage of students with satisfactory scores in communication skills components in 2013 & 2013 OSCE

No	CS component	% with satisfactory performance (95% CI)		P – value
		2012	**2013**	
1	Basic CS (courtesy, appropriate non verbal, verbal CS)	76.6% (95%CI 68.72 – 84.48)	83.9% (95%CI 76.84 – 90.96)	> 0.05
2	Stating intention of session	65.8% (95%CI 56.98 – 74.62)	71.2% (95%CI 62.5 – 79.9)	> 0.05
3	Assessing prior knowledge	44.6% (95%CI 35.35 – 53.85)	48% (95%CI 38.4 – 57.6)	> 0.05
4	Breaking bad news	86% (95%CI 79.54 – 92.46),	79.8% (95%CI 72.08 – 87.52)	> 0.05
5	Recognizing patient's cues	67.1% (95%CI 58.36 – 75.84),	69.2% (95%CI 60.33 – 78.07)	> 0.05
6	Checking and addressing patient's perception and concerns	58.3% (95%CI 49.13 – 67.47)	66.9% (95%CI 57.86 – 75.94)	> 0.05
7	Checking patient's coping skills	34.7% (95%CI 25.84 – 43.56),	50.7% (95%CI 41.09 – 60.31)	> 0.05
8	Checking patient's understanding with opportunity for clarification,	59.5% (95%CI 50.37 – 68.63)	69.2% (95%CI 60.33 – 78.07)	> 0.05
9	Discussing management with the patient	30.2% (95%CI 21.66 – 38.74)	45.2% (95%CI 35.63 – 54.77)	> 0.05
10	Maintaining a professional attitude	61.5% (95%CI 52.45 – 70.55),	69.2% (95%CI 60.33 – 78.07)	> 0.05
11	Overall performance of students	68.5% (95%CI 59.83 – 77.11)	82.7% (95%CI 75.42 – 89.96)	> 0.05

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Teachers' Perspectives of Attributes of Effective Medical Teachers

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Abstract
A teacher's perspective about what makes an effective medical teacher is changing. Medical teachers are not data-banks of facts and experience, imparting knowledge passively. It was decided to see what our faculty (Malaysian and non-Malaysian) thought were attributes of an effective medical teacher.
Methodology:
This was a cross-sectional study in a private medical school in Malaysia. We obtained Ethics' Committee approval. The estimated sample size was 73. Faculty willing to participate after verbal informed consent were included. Thirty attributes were rated on a 5-point Likert scale. Attributes were grouped into four categories: "teaching-related", "personal traits" "interaction with students", and "teacher as a doctor".

Results:
One hundred and four faculty completed the questionnaire (63.5% male, 36.5% female, 20.2% preclinical, 25% surgical, 25% medical, 10.6% public health-family medicine and 19.2% general studies lecturers).

Top ranking attributes selected from the percentage of faculty who rated each strongly were "enabled to understand basic principles and enthusiastic" (77.9%), "made subject meaningful to practice", and "encouraged students to participate" (76%), "ethical" (73.1%), "presented logically" (69.2%), "motivated students" (68.3%), "spoke loudly and clearly" (67.3%), "passionate" (65.4%), "showed concern for students" (64.4%), "no bias" (63.5%), "punctual" and "gave feedback"(61.5%).
Overall ranking for grouped attributes in descending order was "personal traits", "teaching-related", "interaction with students" and "teacher as a doctor".
Conclusions and take home message:
Teachers in this study, did not rank knowledge among the top 10 attributes overall. Awareness of perspectives of teachers will help administrators to organize appropriate staff development activities.
Key words:
medical teacher, attributes

Introduction

All doctors have a professional obligation to educate and train doctors, students and non-medical personnel. [1] Twelve roles of a teacher grouped into six areas have been identified: information provider, role model, mentor, assessor, planner, resources developer. [2

Innovative teaching methods (integrated learning activity, electives, special study module for research, student-led tutorials, small group teaching) are practiced in our college. Our teachers hail from different backgrounds; a quarter are non-Malaysian. Not all have had training in medical education. We decided to study what our teachers thought were attributes of effective medical teachers; this would help in planning staff development activities.

Methodology

This was a cross-sectional study including preclinical, clinical and general studies lecturers in the faculty of medicine in a private medical school in 2014. The objectives of our study were explained to them and willingness to complete the questionnaire was taken as consent. Ethical clearance was obtained from the institutional ethics committee.

A new questionnaire based on literature review [2, 3, 4, 5, 6] and consultation with experts in medical education was used. It included demographic data such as age, gender, race, experience in the profession and teaching, subjects taught, medical education training received, whether full time or part-time and the 30 attributes on a 5-point Likert scale from "Strongly agree" (5) to "Strongly disagree" (1).

Sample size estimated using EpiInfo software with an expected frequency of agreement with the selected attributes as 80% and the worst acceptable agreement as 70%, for 95% confidence interval, was 61 with an additional 20%, taking incomplete responders into consideration.

The data was tabulated and analysed using SPSS 17. The proportion of lecturers who chose "Strongly agree" for each attribute was analysed and the top ten attributes were identified. For those tables with any cells having an expected frequency less than 5, Fischer Exact test was used and for others, Pearson Chi Square was used to test statistical significance.

The attributes were grouped into four categories: "interaction with students", "personal traits", "teacher as a doctor" and "teaching-related". As normality tests showed skewed distribution, nonparametric tests were used. The median and interquartile range were used to identify the grouped attributes in descending order.

Results

Out of 104 lecturers who completed the questionnaire, 63.5% were male, 36.5% were female, 20.2% preclinical, 25% surgery-based, 25% medicine-based, 10.6% public health-family medicine and 19.2% general studies lecturers. There were 32.7% Malays, 15.4% Malaysian Chinese, 25% Malaysian Indian, 1% other Malaysian and 26% expatriate Asians. Almost 40% had medical education training and 35.6% had partial training. Tables 1 and 2 give details about the distribution according to age groups and experience.

Overall, the top ranking attributes selected from the percentage of faculty who rated each of them strongly were:

1. "enabled to understand basic principles" and "was enthusiastic" (77.9%)
2. "made subject meaningful to practice", and "encouraged students to participate" (76%)

3. "was ethical" (73.1%),
4. "presented material logically and clearly" (69.2%)
5. "motivated students to read" (68.3%)
6. "spoke loudly and clearly" (67.3%)
7. "was passionate" (65.4%),
8. "showed concern for students" (64.4%)
9. "had no bias" (63.5%)
10. "was punctual" and "provided feedback" (61.5%).

The ranking for grouped attributes in descending order was "personal traits", "teaching-related", "interaction with students" and "teacher as a doctor". The median values and interquartile range for grouped attributes, ranking overall and according to gender is given in Table 3. There were no statistically significant difference in the mean scores of the grouped attributes in different demographic categories. Table 4 gives the ranking overall and according to gender. Table 5 gives the statistically significant differences in attributes in different demographic categories (p value < 0.05)

Discussion

Being a teacher requires time and effort. [7] In medical education, attention must be directed towards the teaching process as well as the content. [3] Majority of medical teachers have had no formal training to teach and are sceptical about learning theory. [3] Teachers are not data banks of facts and experience, imparting knowledge passively. [3]

Teachers in the study by Singh et al selected "knowledge" as the most desired attribute. [8] Jahan, et all reported that their teachers ranked "knowledge", "clinical competency" and "interest in teaching" as the most desired attributes. [9] However, our teachers did not rank "knowledge" as one of the top 10 desired attributes overall. It was ranked 14 probably because teachers are currently viewed more as facilitators than just information providers. This is especially so in schools with innovative curricula. Personal attributes are considered more important to be an effective teacher. [5] Female lecturers ranked knowledge at 7. However the difference in preference for "knowledge" by female lecturers was not statistically significant.

Overall, 13 attributes were ranked as the top 10 desired attributes. Males ranked 17 and females 20 as the top 10 desired attributes ranking more than one attribute at a similar level. Among the grouped attributes, personal traits were ranked high in this study. Attributes related to interaction with students was ranked 2 by female and ranked 3 by male lecturers. Teaching-related attributes were ranked 2 by male and 3 by female lecturers (Table 3). However, there was no statistically significant differences in the demographic groups in these rankings.

Online teaching methods were ranked high only by about 27.9% of the faculty probably because of the lack of seamless internet connectivity. However, use of online teaching methods was ranked significantly higher by full-time than part-time lecturers though the overall ranking was 19 out of 24. Younger faculty below 30 years of age ranked the attribute "informal" quite low. Distribution of hand-outs was least preferred by surgeons followed by physicians.

The attribute "only teaching" was ranked 29th. Significantly higher number of faculty above 51 years selected this probably because they were nearing retirement or were already retired. "Teaching and clinical / lab work" was ranked 23rd overall and lecturers with more than 10 years' professional experience ranked it significantly higher than those with less experience. Providing feedback which started finding a place in literature after 1970, [5] was included as one of the top 10 attributes by our teachers.

The disadvantages of this study are that it was done in a single medical school and the results therefore, cannot be generalised. As a

new questionnaire was used, it needs to be evaluated by further studies. The advantage was that adequate number of faculty members in all demographic categories responded and the results could form the basis for a faculty development programme suitable to our needs.

Conclusions and take-home message
In our medical school, we should focus on having more teachers working in the clinical setting where possible, to serve as clinical role models. The reasons for poor ranking for online teaching needs to be explored further and staff training may be required to improve the awareness and skill in this area, apart from improving the internet connectivity.

Majority of staff development programmes focus on teaching improvement and less attention is paid to personal development. [10] Excellent teaching is characterised by inspiring, supporting, actively involving and communicating with students. [5] Many of the behaviours of students are similar to those of a child following a parent. [5] Knowledge alone is unlikely to make teaching effective. Personal traits of medical teachers are equally important for effective teaching.

Title: Teachers' perspective of attributes of effective medical teachers

Table 1: Age distribution of lecturers

Experience in years	Number	Percentage
30 years or less	6	5.8%
31-50 years	52	50%
51-70 years	43	41.3%
70 years or more	3	2.9%
Total	104	100%

Table 2: Professional and teaching experience – percentage of total

Experience in years	Professional	Teaching
5 years or less	7.7%	25%
6-10 years	18.3%	33.7%
11-20 years	23.1%	25%
21 years or more	51%	16.3%
Total	100%	100%

Table 3: Ranking of grouped attributes overall and according to gender

Grouped attributes	Gender	No.	Ranking	Median score	Interquartile range
Personal traits - 6 ("loud and clear", "no bias", "punctual", "patient", "hard-working", "not intimidating")	Male	66	1	4.67	0.67
	Female	38	1	4.5	0.83
	Overall	104	1	4.67	0.79
Teaching-related - 10 ("understand basic principles", "makes subject meaning-ful", "presents logically", "clearly", "enthusiastic", "recommends references", "good pace", "used audio-visual aids", "material not in books", "used white board", "used online methods")	Male	66	2	4.4	0.6
	Female	38	3	4.4	0.63
	Overall	104	2	4.4	0.6
Interaction with students – 9 ("Treated students with respect", "concern for students", "accessible", "motivates", "hand-outs", "encouraged student participation", "feedback", "informal", "firm")	Male	66	3	4.33	0.58
	Female	38	2	4.44	0.67
	Overall	104	3	4.33	0.67
Teacher as a doctor – 5 ("expert knowledge", "ethical", "passionate", "teach and work", "only teach")	Male	66	4	4.2	0.6
	Female	38	4	4	0.8
	Overall	104	4	4.2	0.8

Table 4: Attribute ranking overall and according to gender

No.	Attributes (Attribute groups in brackets)	*Percentage and Ranking					
		Over all %	Ranking	Males %	Ranking	Females %	Ranking
1	Enables students to understand the basic principles of the topic (T)	77.9	1	81.8	1	71.1	3
2	Enthusiastic about teaching (T)	77.9	1	80.3	2	73.7	2
3	Makes the subject meaningful to clinical practice (T)	76	2	81.8	1	65.8	5
4	Encourages students to participate in class (IS)	76	2	77.3	3	73.7	2
5	Ethical (TD)	73.1	3	77.3	3	65.8	5
6	Presents the material logically and clearly in an organised way (T)	69.2	4	74.2	4	60.5	6
7	Motivates students to read (IS)	68.3	5	63.6	8	76.3	1
8	Speaks loudly and clearly (P)	67.3	6	66.7	6	68.4	4
9	Passionate about own work (TD)	65.4	7	62.1	9	71.1	3
10	Shows concern for the students (IS)	64.4	8	68.2	5	57.9	7
11	Has no bias (P)	63.5	9	60.6	10	68.4	4
12	Punctual (P)	61.5	10	65.2	7	55.3	8
13	Provides constructive criticism / feedback (IS)	61.5	10	62.1	9	60.5	6
14	Accessible to students seeking advice (IS)	59.6	11	63.6	8	52.6	9
15	Treats students as equals and with respect (IS)	59.6	11	62.1	9	55.3	8
16	Hard working (P)	58.7	12	60.6	10	55.3	8
17	Recommends appropriate references for reading (T)	57.7	13	50	14	71.1	3
18	Shows an expert knowledge of the subject (TD)	53.8	14	51.5	13	57.9	7
19	Patient (P)	53.8	14	53	12	55.3	8
20	Uses audio visual aids effectively (T)	52.9	15	57.6	11	44.7	10
21	Adopts an appropriate pace (T)	43.3	16	43.9	16	42.1	11
22	Not intimidating (P)	43.3	16	45.5	15	39.5	12
23	Teaches and also does his/her clinical / lab duties (TD)	39.4	17	39.4	17	39.5	12
24	Includes material not readily accessible in books (T)	36.5	18	39.4	17	31.6	13
25	Uses Online learning methods LMS (T)	27.9	19	28.8	18	26.3	15
26	Firm with students (IS) (p < 0.05)	26	20	24.2	19	28.9	14
27	Gives hand outs (notes) (IS)	19.2	21	16.7	21	23.7	16
28	Informal with students (IS)	18.3	22	19.7	20	15.8	17
29	Committed only to teaching, even if he/she were a clinician / lab person (TD)	16.3	23	16.7	21	15.8	17

| 30 | Prefers the white board (T) | 11.5 | 24 | 12.1 | 22 | 10.5 | 18 |

Note: * Percentage of teachers who strongly recommended the attribute No.: Number **Attribute groups in**

brackets: IS: interaction with students; P: personal; T: teaching related; TD: teacher as a doctor

Table 5: Statistically significant differences in attributes in different demographic categories (p value < 0.05)

Demographic characteristics	Statistically significant differences
Age	The attribute "only teaching" was ranked significantly higher by lecturers in the age group 51 – 70 years than other age groups. The attribute "informal" was ranked significantly higher by lecturers older than 50 years compared to younger age groups.
Gender	The attribute "firm" was ranked significantly higher by female than male lecturers.
Discipline	The attribute "making the subject meaningful to practice" was ranked significantly lower by lecturers from general studies compared to those from other categories. Distributing hand-outs was ranked significantly lower by lecturers from the clinical side compared to those teaching other subjects.
Race	The attribute "accessibility to students" was ranked significantly lower by Malaysian Chinese compared to lecturers from other races.
Professional experience	Ranking by lecturers with more than 10 years' professional experience for the attribute "clinical / lab work with teaching" was significantly higher compared to other experience categories.
Full / Part-time	Use of online teaching methods was ranked significantly higher by full-time than part-time lecturers. However, it received an overall ranking of 19 of 24 only.

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Effect of Dependency on Self-esteem among People with Dementia at the Dementia Day Care Centre.

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Abstract:

Background: Dementia is known as a serious disorder that commonly appears in aged individuals. The cognitive impairment of the individuals creates difficulties in performing daily activities and tends them to depend on a caregiver to guide and help them to complete their chores. The level of dependency predicts the self-esteem of the dementia people. Objective: The aim of the study was to find the relationship between dependency and self-esteem of the PWD (People with dementia) in Dementia Day Care Centre. Methods: The study was done on 40 PWDs aged 50 years and above with mild to moderate dementia in the Dementia Day Care Centre. Rosenberg Self-esteem Scale was given to the PWD to assess their level of self-esteem and Care Dependency Scale was given to their respective caregivers to assess the dependency level of the dementia people. The study variables were gender, ethnicity, age and educational level, stage of dementia, total of dependency score and total of self-esteem score. Results: The total number of PWD participated in this study was 40. More than half (60%) of the PWD were female and 40% were male. Chinese were the majority among the patients. Most of them were aged 70 and above. 85% of the patients were educated. There is a significant positive relationship between dependency and self-esteem with the p-value of .034, where p<.05. Conclusion: Self-esteem is highly influenced by the dependency of the PWD. Therefore, the higher the dependency, the lower the self-esteem of the PWD. More awareness should be created among the public so that they know how much the demented person depends on others and their perception of their own self.

Keywords: Dementia, caregiver, dependency, self-esteem

Introduction

Dementia is a serious disorder that commonly appears in aged individuals.[1] World Alzheimer Report 2015 stated that 46.8 million people were living with dementia worldwide. This figure will reach 74.7 million by 2030 and 131.5 million by 2050.[4] Health Profile Malaysia reported that dementia was the 7th cause of death in the rate of 23.73 per 100,000 population in 2016.[5] In Malaysia, based on UN data on the projected population of over 30 million people, the number of people with dementia is estimated at 123 thousand in the year 2015 and to over 261 thousand by year 2030 and to 590 thousand by the year 2050. Dementia is therefore a national problem that is constantly growing in magnitude due to demographic changes. Malaysia is undergoing rapid demographic change with increasing number of elderly population, hence age related disease like dementia is expected to increase (Douzenis, 2008).

Dementia is a neurocognitive disorder which affects the brain, weakens the memory and produces personality changes.[2] Based on the World Alzheimer Report 2009, cognitive deficits of People with Dementia (PWD) create difficulties in performing their daily activities compelling them to depend on others for their basic activities of daily living[3].

There are four factors affecting the quality of life of PWD. The factors are relationships (together vs alone), aim in life today (purposeful vs aimless), wellness perspective (well vs ill) and sense of place (located vs unsettled).[6] These factors can create fear of falls and turn out to be dependent on others.[7] It has been found that the dependency level has a greater impact on the demented persons' health-related quality of life.[8]

People with dementia need the support of caregivers to carry out their daily chores. A caregiver is a person who cooks meals for a loved one, reminds the loved one to take medications and on the daily tasks, providing companionship to the loved one who has lost the social contacts.[9] The caregivers are the best persons to report the level of dependency in people with dementia.

Dependency is an important concept in every one's life. The level of dependency on others reflect an individual's self-esteem. Besides, dependency is a phenomena of aging which was seen as a loss in both mental and physical functioning. It is mentioned that there are three types of dependency which are structured, physical and behavioral dependency. Structured dependency is created by the social structures in a society and used by sociologists and social demographers. The physical dependency is caused by diseases of old age and behavioral dependency based on psychological studies has three etiologies – learned helplessness, learned dependency and selective optimization with reinforcement.[10] Dependency in reference to different age groups had been used in pedagogy, social psychology, psychiatry and nursing.[11]

The concept of self-esteem was first developed in 1890 by the psychologist, James as one's sense of pride or self-respect. Self-esteem has been defined as a person's overall sense of self-worth and personal value.[12] Self-esteem can be sequenced and quantified at different levels as high, medium or low.[13] It was stated that people with high self-esteem are more adept to maintain high feeling of self-worth compared to people with low self-esteem[14] and high self-esteem is highly favorable evaluation of the self, whereas low self-esteem is unfavorable judgement of the self.[15] It was observed that individuals experience low self-esteem when they are dependent on others for support and assistance.[16] It has been found that most

patients with mental illness will have low self-esteem.[17]

Therefore, the purpose of this research is to investigate the relationship of dependency with self-esteem among people with dementia in Dementia in Day Care Centre.

METHODS

This was a cross sectional study conducted among people with dementia (PWD) at the dementia daycare center and their respective caregivers and data were collected through questionnaires. People with mild and moderate dementia, based on their clinical assessment were chosen among the people attending dementia day care center, Ipoh, Perak, Malaysia. All of them were 50 years old and above. Demographic information obtained included gender, ethnicity, age, educational level and stage of dementia. The Rosenberg Self-Esteem Scale was given to the PWD to assess their level of self-esteem. The questions in the questionnaire were explained to them and a Chinese staff read out the Chinese version of the Rosenberg Self-Esteem Scale for those who did not understand English and Malay Language.

The care dependency scale (proxy version) was used among the caregivers to assess the dependency level of the patients. The details about the caregivers were collected and the dependency survey was conducted at the dementia day care centre. As the centre provides transport for some of the PWD, it was not possible to reach all the caregivers for the face-to-face data collection. In this situation, data were collected through the phone. The score of 68 and below was considered as dependent. The score of 69 and above was considered as dependent. Both the data from the PWD and the caregivers were recorded.

The collected data was analyzed using the Statistical Package for Service Solution (SPSS) version 19. Descriptive data were summarized using frequency tables.. Shapiro Wilk test was used to test the normality. Fisher's exact test was used to find the association between dependency and self-esteem among the PWD when the expected frequency in any cell was < 5. A p value of <0.05 was considered as statistically significant. Spearman's correlation was used to find out the relationship between dependency and self-esteem among the PWD.

Results

The demographic data of the dementia patients are shown in Table 1. There were no significant relationship between self-esteem and demographic information such as age, gender, ethnicity, education level and stage of dementia. Most of them (82.5%) were 70 years old and above with female predominance of 33 (60%) and Majority of them were Chinese 31(77%). The severity of dementia was not significantly related to self-esteem.

The association between dependency and self-esteem of PWD is represented in Table 2. Those with high level of dependency showed significantly lower self-esteem (P=0.034).

The cut off score for the self-esteem was determined using ROC curve with sensitivity for the score 29.5 was 87.5% and specificity was 80%. The level of dependency was assessed using CDS (+REF). Based on the scale, 69 and above was considered independent.

DISCUSSION

Most of the PWD attending day care were of older age because of the nature of the disease most prevalent among the elderly population. Elderly people most often blame and look down upon themselves when they are unable to perform their daily activities.[18] Most of them were females, which is in accordance with a study that higher number of women experience Alzheimer's disease compared to men because women's lifespan is higher than men [19]. More than ¾ of the PWD were Chinese, which is expected because of elderly Chinese predominance in Ipoh. Most of PWD had either primary or secondary level education. Studies have shown that the lower educational attainment and less complex occupational activities have been found to be associated with cognitive decline and dementia risks.[20, 21]. This cannot be concluded definitely because of the small sample size in this study (22 mild and 18

moderate dementia people). It has been found that low self-esteem were more frequent in the late stages of dementia.[22] However, this study did not show such correlation probably due to small sample size of PWD. The caregivers knew better about the dependency level of their loved ones with dementia, because they were the ones who accompany them throughout the day[9]. Our study observed significant relationship of decreased self-esteem with increased level of dependence and the persons had a negative perception about their self as mentioned in the Rosenberg Self-Esteem Scale. Studies with large number of PWD should be done to find the relationship between the dependency and self-esteem and to establish our findings. Rehabilitation activities should be promoted to improve the activities of daily living of PWD, which in turn could improve one's self-esteem.

CONCLUSION

The level of dependency of PWD is an important predictor of self-esteem which in turn affects their quality of life. Our study, with small sample size showed that PWD with high dependency level have low self-esteem. This observation leads to conduct further studies with larger sample among PWD to establish our findings. Dementia day care centers can play a vital role in providing rehabilitation and reduce dependency among PWD

Table 1: Association of demographic characteristics and self-esteem

| Characteristics | Self-esteem | | Total N (%) | P |
	High self-esteem N (%)	Low self-esteem N (%)		
Age				
69 years old and below	*1 (14.3%)	6 (85.7%)	7 (17.5%)	
70 years old and above	8 (24.2%)	25 (75.8%)	33 (82.5%)	0.672
Gender				
Male	5 (31.3%)	11 (68.8%)	16 (40.0%)	0.441
Female	*4 (16.7%)	20 (83.3%)	24 (60.0%)	
Ethnicity				
Malays	0 (0.0%)	*1 (100.0%)	1 (2.5%)	
Chinese	6 (19.4%)	25 (80.6%)	31 (77.5%)	0.500
Indians	*3 (37.5%)	5 (62.5%)	8 (20.0%)	
Education Level				
Primary and below	*3 (23.1%)	10 (76.9%)	13 (32.5%)	
Secondary	*4 (19.0%)	17 (81.0%)	21 (52.5%)	0.872
Tertiary	*2 (33.3%)	*4 (66.7%)	6 (15.0%)	
Stage of Dementia				
Mild	5 (22.7%)	17 (77.3%)	22 (55.0%)	1.000
Moderate	4 (22.2%)	14 (77.8%)	18 (45.0%)	

* Fisher's Exact Test
**p-value <0.05

Table 2: Association between dependency and self-esteem among the dementia patients

| | ¶Self-esteem | | | |
	High self-esteem N (%)	Low self-esteem N (%)	Total N (%)	P
€**Dependency**				
Independent	*4 (57.1%)	*8 (42.9%)	7 (17.5%)	**0.034
Dependent	5 (15.2%)	28 (84.8%)	33 (82.5%)	
	9 (22.5%)	31 (77.5%)		

* Fisher's Exact Test
** p-value < 0.05
¶ Self-esteem cut off <29.5
€ Dependency cut off >69.0

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USEFULNESS OF NEWLY ACQUIRED COMMERCIAL DENGUE NSI ANTIGEN TEST KIT FOR EARLY DETECTION OF DENGUE IN A GENERAL PRACTICE CLINIC IN BATU GAJAH, PERAK

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ABSTRACT

The non-structural protein 1 (NS1) of the dengue viral genome has been found useful for diagnosis of acute dengue infections, being detected from one day and up to 18 days post onset of symptoms (1). Rapid Dengue NS1 antigen test was made available in commercial test kits for private clinics in Perak in 2014. This study aimed to determine the use usefulness of dengue NS1 test kits in suspected dengue cases in a general practice clinic in Perak and the period in which positive test results were obtained after the onset of symptoms. Clinic records of all suspected dengue cases seen in the ten months from October 2014 to July 2015 were traced. Patients' demographic characteristics, presenting symptoms and the use of One Step Dengue NS1 Antigen test (Avo Diagnostics) were analyzed using SPSS version 17. Seventy one suspected dengue fever cases were seen in the study period, the highest number in July 2015 (25%). Majority were Chinese (80%), female (63%), and aged 40 years and above (51%). Most patients presented with fever (99%), body-ache (51%), gastrointestinal symptoms (51%) and headache (44%). Dengue NS1 antigen test was done in 94% of the suspected cases with 61% testing positive. The majority of the cases presenting one day to five days after onset of symptoms tested positive i.e. 59% (1 day), 90% (2 days), 54% (3-4 days) and 89% (5 days).

Using dengue NS1 antigen test, positive results can be obtained as early as one day after the onset of symptoms. This test is a useful tool to aid primary care physicians detect dengue fever early.

Key words: Dengue NSI Antigen test, early detection, dengue fever, general practice, Primary care physicians

INTRODUCTION

Dengue fever caused by dengue virus is a mosquito borne flavivirus, endemic in more than 100 countries including Malaysia (1). According to the study by Ang KT et al. 83.9% had sought medical consultation at primary care clinics prior to admission to hospital with 68.7% been seen on two or more occasions in primary care (2). The mean time of seeking treatment at primary care was 1.4 days of fever compared to 4.9 days to admission (2). Therefore primary care physicians play an important role in early recognition and management of dengue fever.

Patients often present to primary care within the first few days after onset of symptoms such as fever, headache, and body ache and are very anxious to know if they have dengue. But with relatively undifferentiated symptoms, these symptoms can be due to other causes. In primary dengue infection, IgM antibody is detected 5 days after onset of symptoms and IgG antibodies after 1 week. Secondary infection IgG antibody rises rapidly but the IgM antibody response is more variable (3). Therefore using serology tests alone, the primary care physician is unable to confirm dengue infection in first few days after onset of symptoms.

Non-structural protein 1 (NS1) of the dengue viral genome has been shown to be useful as a tool for diagnosis of acute dengue infections (3). Dengue NS1 antigen has been detected in the serum of infected patients as early as one day and up to 18 days post onset of symptoms. A positive result confirms diagnosis (4).

This test was first available commercially as Rapid dengue NS1 test kits for private clinics in Perak in 2014. The objectives of this study was to determine the use of Dengue NS1 test kits in suspected dengue cases in a general practice clinic in Batu Gajah, Perak after the clinic acquired the test kits and to determine the period in which positive test results were obtained after the onset of symptoms

METHODS:

Clinic records of all suspected dengue cases seen between October 2014 and July 2015 were traced. Just prior to the study period mentioned, the general practice clinic, situated in Batu Gajah, Kinta District, Perak acquired the Dengue NS1 Antigen test kits. The study period was chosen to start from the time the clinic acquired the test kits and was stopped ten months later in July 2015 to meet the dateline for abstract submission for oral presentation of its results at the Second International Conference on Tropical Medicine and Infectious Diseases held from 29/9/2015-1/10/15 in Ipoh, Perak. The patients' demographic characteristics, presenting symptoms and the use of one step Dengue NS1 Antigen test (Avo Diagnostics) (5) were compiled and analysed using SPSS version 17. The NS1 Antigen test used immunochromatographic assay method, the monoclonal antibody specific to Dengue virus NS1 antigen for accurate determination of Dengue virus infection. The test kit specified a sensitivity of 97.9% and specificity of 99 %(5). If blood sample was infected with dengue virus, a visible line appeared in test region on the membrane. The absence of coloured band in test region was a negative test result.

In January 2015, the clinic also acquired the Combo test (for NS1, IgG, IgM). This was used on some suspected dengue cases during the study period, the results were also noted and compiled in this study. As the Combo test was more expensive than the NS1 Antigen test, it was used only for those presenting 5-6 days or more after onset of symptoms or when a secondary dengue infection was suspected and if the patient could afford to pay for it.

RESULTS

Seventy one suspected dengue cases were seen in the study period. Details of the demographic characteristics of these patients are listed in Table I. Majority were Chinese (80.3%), female (63%) and aged 40 years and above (50.8%).

Analysis of the suspected dengue cases by month, showed that the majority of the cases presented in the months of July 2015 (25%) and in November to December 2014 (35%), coinciding with the peak period of dengue cases throughout the country.

Ninety nine percent of the patients presented with fever, followed by musculoskeletal and gastrointestinal symptoms (refer Table 1 for details).

Out of the 71 suspected dengue cases, 67 patients took the NS1 Antigen test (94%). Four patients did not take the test, including one 13 year old who refused to take the test and the family members of three other patients (a child, teenager and elderly patient) requested referral to the nearby government hospital.

Table II shows the duration of onset of symptoms at time of presentation to the clinic and NSI Antigen test results. Among patients who presented on the first day after onset of symptoms 57% tested positive for NS1 Antigen. This rose to 90% for cases who presented at 2 days, 57% and 89% at 3-4 and 5 days after onset of symptoms (refer Table II for details). In two cases, the duration of onset of symptoms were not recorded.

Table III shows the results of the 11 suspected dengue cases where the Combo test was used. Again NS1 Antigen was positive in 3 out 4 cases where onset of symptoms were equal or less than 3 days.

DISCUSSION

In the review article on "Managing Dengue in Primary Care. A Practical Approach" published in Malaysian Family Physician journal, 2014,

Lum et al emphasised the need to monitor patients through the febrile phase where the symptoms were undifferentiated to the next phase, the critical phase, where the fever dissipated but danger signs and symptoms appeared (6). However at the time of publication of the review article, nothing more in terms of investigation, except for a full blood count, could be offered in the first 72 hours in the febrile phase. A full blood count and differential count was recommended in centres where this test could be done to help to differentiate a viral from bacterial infection and to provide a baseline reading to monitor changes in haematocrit and platelet count during the critical phase.

In 2011, an article, published on the "Use of Dengue NS1 antigen for early diagnosis of dengue virus infection" by Fauziah Md Kassim et al from the Institute of Medical Research, Kuala Lumpur, Malaysia, recommended the use of Dengue NSI antigen to compliment the current antibody tests to increase the diagnostic efficiency for early diagnosis of dengue infection(7). However such test kits were not available commercially until 2014 for Dengue NS1 Antigen and 2015 for Combo test locally.

In this study, the majority of the patients presented with fever (99%), body-ache (51%), gastrointestinal symptoms (51%) & headache (44%). These were all nonspecific symptoms that could be attributed to other causes. However the Dengue NS1 test done on 94% of the suspected cases, showed 61% which tested positive during the study period. The majority who tested positive presented one day to five days after onset of symptoms. Positive results for dengue was obtained as early as one day after onset of symptoms in suspected cases, enabling the consulting primary care physician to detect dengue infection early and initiate management.

The Combo test had the advantage of testing for both NS1 antigen and IgG and IGM antibodies. It helped to differentiate between primary and secondary dengue infections or a previous infection. Since the Combo test was more expensive than the NS1 Antigen test, for private patients who could not afford it, the NS1

antigen test was still be very useful for primary care physicians to detect dengue and initiate management early.

Pang et al in their study published in 2017, to assess changes in knowledge, attitude and practices on dengue diagnosis and management after the largest dengue epidemic in Singapore found a significant increase in the use of dengue diagnostic tests (combination of Dengue NS1 plus IgM/IgG antibody detection), associated with a significant reduction in referral of dengue patients to hospital and a significant increase in frequency of clinic follow-ups (8). It was highlighted that the availability of the combination dengue diagnostic tests improved management. Prior to the Singapore dengue epidemic in 2013, dengue serology (IgM/IgG) test was used. In 2014, the combination dengue test was made available in Singapore. It was also found that both IgM/IgG serology and Dengue NS1 assay test were also more frequently used after the epidemic both in private and public clinics in Singapore(8).

This study was done during the period when Dengue NS1 antigen test kit was first introduced commercially in Malaysia and subsequently during the course of the study, the Combo test was made available, so most private general practice clinics in the community around where this study was done had not acquired the test kits. The public primary care clinics were just starting to acquire these Dengue NS1 antigen and Combo test kits.

Dengue fever is endemic in Malaysia just like in Singapore. The majority of patients present first to general practice / primary care. Delay in detection and management can produce adverse outcomes. This study shows that using Dengue NS1 Antigen test in general practice allows for detection of dengue as early as 1-2 days of onset of symptoms. The test is easy to do in the clinic, yields immediate results and acceptable to the majority of patients, and can be done in the clinic itself at a reasonable cost and acceptable to the patients.

The limitation of this study is that it was done in one private general practice clinic with a small sample size. Also some data such as duration of onset of symptoms were not recorded in two cases. Therefore the authors suggest that a larger study like the one in Singapore to be conducted to look into the impact of the use of such test kits on the management of dengue fever in both private and public primary care clinics in Malaysia.

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Table I. Demographic characteristics and presenting complaints of patients with suspected dengue fever (n=71)

Demographic characteristics / presenting complaints	Number (Percentage)
Gender	
i) Male	26 (36.6)
ii) Female	45 (63.4)
Ethnic group	
i) Malay	3 (4.2)
ii) Chinese	57 (80.3)
iii) Indian	10 (14.1)
iv) Others	1 (1.4)
Age group (years)	
i) 19 and below	22 (31.0)
ii) 20-39	13 (18.3)
iii) 40-59	18 (25.4)
iv) 60 and above	18 (25.4)
Presenting complaints	
i) fever	70 (98.6)
ii) musculoskeletal (bodyache, back/joint pains)	39 (54.9)
iii) gastrointestinal	36 (50.7)
iv) headache	31 (43.7)
v) rashes/flushing	22 (31.0)
vi) respiratory symptoms	21 (29.6)
vii) malaise	14 (19.7)

Table II. Onset of symptoms versus Dengue NS1 result

Onset of symptoms prior to presentation to clinic	No of cases tested NS1 Antigen positive	No of cases tested NS1 Antigen negative	Refused NS1 / not done	Total no of cases	% tested positive to NS1 antigen
< 1 day*	0	1	0/0	1	0%
1 day#	8	5	1/0	14	57%
2 days	9	1	0/0	10	90%
3 to 4 days	13	9	0/1	23	57%
5 days	8	1	0/0	9	89%
6 days	0	3	0/1	4	0%
7 days	3	2	0/1	6	50%
10 days	1	1	0/0	2	50%
Total	42	24	4	69	61%
Duration of onset not recorded	*1*	*1*	*0/0*	*2*	
Total	43	25	4	71	61%

Note: * <1 day means patient presented on the same day of onset of fever.

 # 1 day means patient presented to clinic after one day of onset of fever

Table III. Suspected dengue cases using Combo test

Case number	Onset of symptoms prior to presentation	No of cases	NS1	IgG	IgM
1.	<=3 days	4	Positive	Positive	Negative
2.			Positive	Negative	Negative
3.			Positive	Negative	Negative
4.			Negative	Positive	Negative
5.	4-5 days	2	Negative	Negative	Negative
6.			Negative	Positive	Positive
7.	6 to 10 days	5	Negative	Positive	Positive
8.			Negative	Positive	Positive
9.			Negative	Positive	Positive
10.			Positive	Positive	Negative
11.			Negative	Positive	Positive

Recurrent Focal Myositis of the Left Thigh– rare but treatable inflammatory myopathy - A case report

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Abstract

Focal myositis presents as an acute and localized inflammation of the muscle without systemic involvement. The etiology is unknown. Several case reports in the literature have described different presentations of the condition, the majority affecting the limbs with a spectrum of clinical progression, laboratory, and radiological findings.

It is often confused with infection, muscle tumor such as sarcoma, paraneoplastic syndrome or even immune-mediated polymyositis. Delay in diagnosis and inappropriate treatment may lead to recurrence of the condition.

We report a case of recurrent focal myositis of the left thigh in a man in whom optimal treatment commenced six months after the onset led to regression of his symptoms and signs.

Keyword: Focal myositis, muscle biopsy, magnetic resonance imaging.

Introduction

Focal myositis (FM) is a rare benign inflammatory myopathy of unknown etiology, characterized by the presence of pseudotumor in the skeletal muscle of the limbs commonly thighs and calf.1 Other differential diagnosis would be infective causes, deep vein thrombosis and soft tissue sarcomas. 2, 3, 4

Muscle biopsy and magnetic resonance imaging (MRI) are crucial in making the diagnosis of FM.

FM may be self-limiting or resolve spontaneously over time.1 However, it responds well to corticosteroids and non-steroid anti-inflammatory drugs and cases that progress may require immunosuppressive therapy.3

We describe a case with recurrent FM of the vastus medialis muscle of the left thigh. He responded well to treatment with corticosteroids and methotrexate. This has never been reported in the Malaysian literature.

Case report

A 50-year-old man, presented with a history of localized pain and swelling over his left thigh for the past 6 months. Initially he also noted redness of the overlying skin. There was no associated generalized muscle pain or arthritis. He had no history of trauma or injury, fever, rash, or other systemic involvement. He was unable to squat down due to the pain since then.

Systemic examination was unremarkable except for tenderness over the left quadriceps. The overlying skin was not indurated.

Laboratory investigations showed normal creatine-kinase (106 U/L), mildly elevated erythrocyte sedimentation rate (ESR) of 26 mm/hour and negative screening for HIV, hepatitis B and C. Immunological markers (antinuclear antibodies, rheumatoid factor, extra-nuclear antigen – anti-JO1, anti-U1RNP, anti-Ro and anti-La) were negative. Electromyography (EMG) of the left thigh was normal.

Muscle biopsy of the left vastus medialis was performed and showed a disarray of muscle bundles associated with fibrosis and interstitial inflammation. The perimysium was widened and cellular in some areas. The muscle fibers were variable in size but there was no necrosis noted. Scattered atrophy of muscle fibers with atrophic multinucleated giant cells were seen. The interstitial and fibrotic tissue showed increase lymphocytes and plasma cells and occasional eosinophils. There was an absence of immature fibroblasts, haemorrhage, osteocytes or myofibroblasts. Calcification or bony trabecular formation was not seen and there was no sign of malignancy seen. Immuno-histochemical test was not performed.

MRI of the left thigh showed increased T2 signals over the lower belly and musculotendinous junction of vastus medialis conforming to a feathery pattern of inflammatory myositis. A smaller area of necrosis or degeneration was noted in the post contrast examination. There was edema of the overlying subcutaneous tissue. Similar

signal alteration was also noted in the short head of bicep femoris with areas of necrosis. The overlying soft tissues was edematous. (Figure 1a, b)

He was given prednisolone 5 mg daily with non-steroidal anti-inflammatory medication (celecoxib 200 mg daily). However he showed no improvement and had several admissions for recurrent pain over the same site.

At six months, the pain had still not resolved. MRI was repeated and this showed improvement in the increased signals in the left vastus medialis. There was no mass-like lesion or necrosis seen. The earlier lesion seen in the short head of bicep femoris had resolved. (Figure 2a,b)

In view of recurrent episodes, prednisolone dose was increased to 20 mg daily in combination with methotrexate 10 mg weekly. His symptoms resolved within a few days of commencement of the higher dose of steroid.

Discussion

Focal myositis was first described by Heffner et al in 1977, as a clinical entity describing focal myositis as a benign inflammatory pseudotumor of the skeletal muscle.[1] Focal myositis of the thigh has been described in the literature involving quadricep femoris, distal leg group of muscles.[2,5] Clinical diagnosis of focal myositis is commonly supported by muscle biopsy which is confirmatory.[6] MRI scan is highly sensitive and diagnostic to localize the site of inflammation and mass.[6,7] It is also very useful to evaluate the outcome.

In our patient, non-specific myositis was diagnosed during his first presentation and this was confirmed by MRI scan and muscle biopsy. However, due to its rarity and lack of recognition of the condition, the corticosteroid dosage was suboptimal. The clinical history, muscle biopsy, MRI scan and laboratory finding were consistent with focal myositis. Absence of systemic involvement such as fever, generalized muscle weakness or other constitutional symptoms makes a diagnosis infection and polymyositis to be very unlikely. Typically in polymyositis ESR, CRP or CK will be raised and immunology markers such as the anti-JO1 autoantibody may be positive. However, there are cases of polymyositis reported in the literature involving distal muscles or with normal CK levels.[8] Immunohistochemical test of the muscle biopsy may show presence of CD4+ T cells in focal myositis[9] and dermatomyositis[10], but not in polymyositis.[11]

Despite a very low dose of prednisolone 5 mg daily, the repeat MRI scan after 6 months showed the lesion has resolved partially. In many previous case reports, focal myositis may achieve spontaneous remission over time with corticosteroid and NSAIDs, even in relapsed cases.[12] The use of immunosuppressive agents such as methotrexate for a steroid sparing effect has been shown to be effective in refractory cases.[13, 14]

It is unlikely for the focal myositis in this patient to progress to polymyositis based on normal laboratory markers (ESR, CRP, CPK) and regression of the

symptoms. The MRI scan has showed only single muscle group involvement. However, long-term follow-up is needed to monitor any progression of the condition.

In conclusion, patients with focal myositis have a good prognosis and relapse can be prevented if diagnosed early and appropriate treatment is given.

Conflict of interest: Authors has no conflict of interest.

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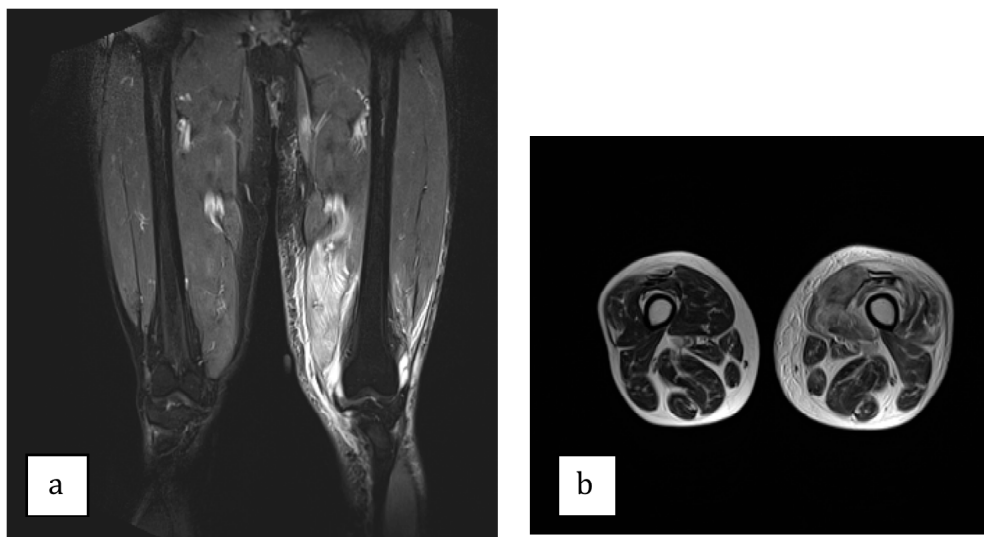
Figure 1. A coronal and axial view of T2 weighted magnetic resonance imaging – high signal intensity in vastus medialis of the left thigh suggestive of muscle inflammation.
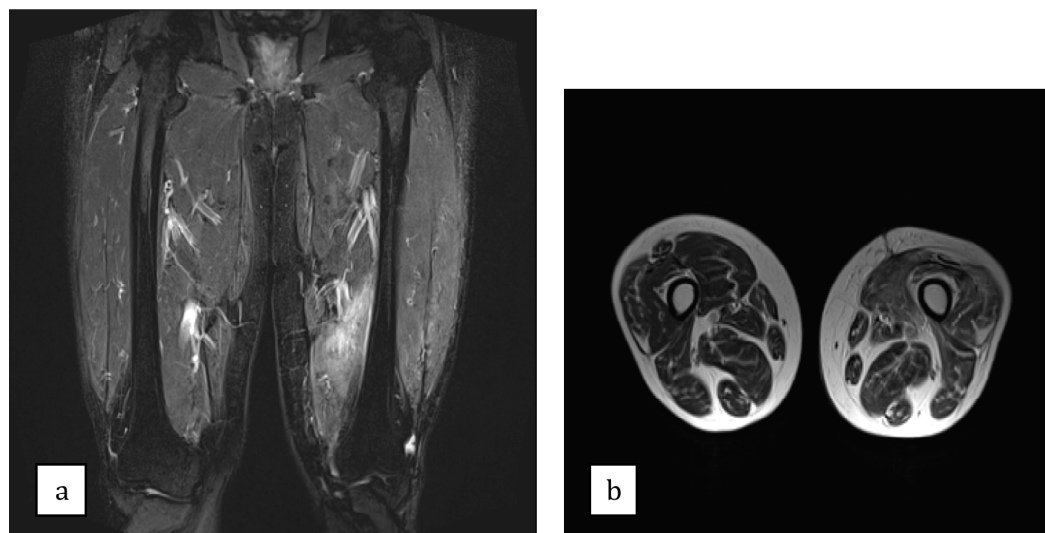

Figure 2. A repeated T2 weighted magnetic resonance imaging 6 months later showing resolution of the signal intensity in vastus medialis of the left thigh.

Female Urinary Retention in the Young and Elderly: A Case Report and Review of Literature.

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Abstract.

Urinary retention rarely affects women. In obstructive retention the source must be determined and treated to allow the patient to void normally. A common anatomic cause of urinary retention is extrinsic compression due to a pelvic mass. In addition, obstruction can also be seen in women with pelvic organ prolapse. Haematocolpos and uterine fibroids have also been documented as causes of acute urinary retention.

The following cases of female urinary retention highlight the need to consider haematocolpos in the adolescent girl who has not attained menarche and fibroids in the older female.

Keywords Imperforate hymen, acute urinary retention, haematocolpos, fibroid.

CASE 1.

A 12-year-old school girl was admitted with a history of lower abdominal pain for two days. She had never been sexually active and reported no vaginal discharge or difficulty with bowel movements. Her medical history was unremarkable and she had not attained menarche yet. A few days earlier she had acute urinary retention which required catheterization and was later referred to our center for further management.

On examination she was comfortable with stable vital signs. She was not pale and secondary sexual characteristics were present.

The abdomen was soft, non-tender with no palpable masses. As she was 12 years old and not sexually active, vaginal examination was not performed.

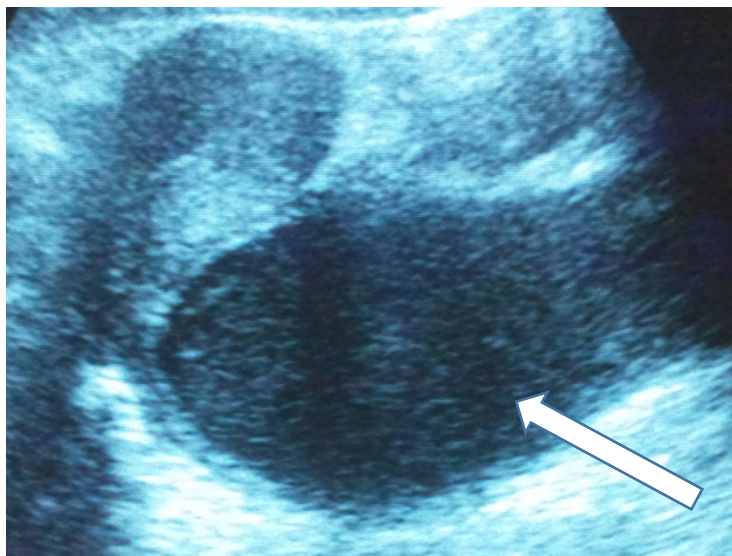A careful examination of her external genitalia revealed an imperforate hymen.

Fig.1. Transabdominal ultrasound scan showed a 5.7 by 7.1 cm haematocolpos (arrowed) with a normal sized ante-verted uterus pushed superiorly.
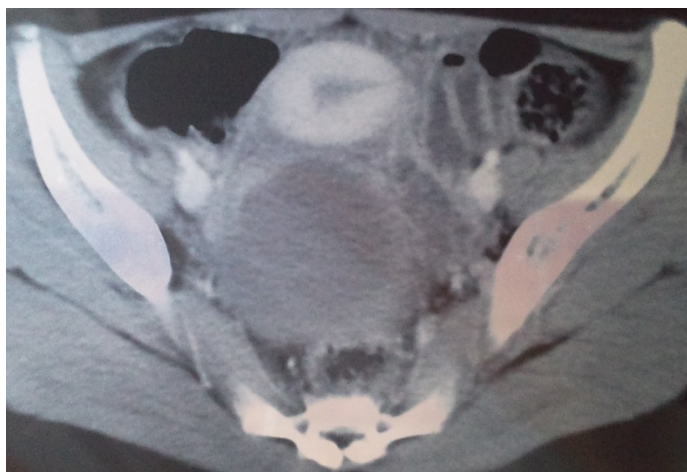

Fig.2. CT scan showed a vagina dilated with hypodense material (haematocolpos) 5.8 by 10cm. The uterus was pushed superiorly with a minimally fluid filled cavity. All other intra-abdominal organs were normal.

The patient was taken to the operating room where a cruciate hymenectomy was performed and 350 ml of dark stale blood was drained.

She was discharged well the following day with an uneventful follow up a month later.

CASE 2
A 49-year-old single nulliparous teacher had a history of recurrent urinary retention over the past nine months.

Prior to her admission, she had been seen at primary health care centers several times and treated as urinary tract infections. However, as the problem became worse with increasing

abdominal distension, she decided to come to Hospital Ipoh. Apart from intermittent urinary retention, she did not have any other urinary symptoms.

She attained menarche at 14 years of age. Her periods were regular with a 28 day cycle and menses lasting up to seven days. She had mild dysmenorrhea for the last 20 years with no heavy menstrual loss.

Her past medical and surgical history was uneventful. Her bowel habit was normal. She had no family history of malignancy.

On examination, her vital signs were stable and she was not pale. The abdomen was soft, non-tender and slightly distended below the umbilicus.

There was a palpable firm mass of 18 weeks size which was mobile left to right, unable to get below it. The liver and spleen were not palpable and the kidneys were not ballotable. There was no fluid thrill and the bowel sounds were present.

Her full blood count, renal profile and urine analysis results were all normal. Ultrasound showed-multiple uterine fibroids with a large fundal fibroid of 7.8x 6.5cm. The uterus was retro-verted and measured 10 x 8 cm.

She had total abdominal hysterectomy and bilateral salpingo-oophorectomy (TAHBSO) performed.

CASE 3

A 79-year-old para 0+2 was admitted into the surgical ward for acute urinary retention. No history of abnormal vaginal bleeding. Further evaluation revealed a 22 weeks size fibroid.

Ultrasound showed multiple calcified sub-serosal and intramural uterine fibroids. No hydronephrosis was seen.

TAHBSO was done with an uneventful follow up. The patient was well and able to pass urine normally.

The histopathological report confirmed the uterine fibroids.

Fig.3 A post hysterectomy specimen of a fibroid uterus with atrophic adnexae and cervix from a 79-year-old lady.

DISCUSSION.

Haematocolpos can easily be overlooked as a cause of urinary retention since vaginal examination is not normally done in young girls who have not attained menarche.

The diagnosis of imperforate hymen with haematocolpos as a cause of urinary retention in children may be easily made after a genital examination. However, it is often missed as it is not considered and an incomplete examination performed.

In a series of cases of imperforate hymen reported by Calvin et al (1), 46% presented with acute urinary retention. This problem occurs when the accumulation of menstrual blood in the vagina and uterus may form a mechanical effect on the urethra and bladder and lead to obstructive urinary symptoms (2). In a study by Posner et al. (2), girls presenting with findings similar to ours were also given preliminary diagnoses other than imperforate hymen, including urinary tract infection, appendicitis, nephrolithiasis, and abdominal tumor. Hematocolpos does not always present with gynecological symptoms, just like our patient who presented a month earlier with acute urinary retention and lower abdominal pain. She was catheterized and treated as cystitis. On her second visit an ovarian tumor was suspected.

Ultrasonography is the preferred radiological method in the diagnosis of haematocolpos (3), however MRI may be required to exclude the occurrence of other abnormalities of the Mullerian tract or urological abnormalities that seem to be related. As many as 25–90 % of women with renal anomalies are suggested to have concurrent genital anomalies (4).

Treatment of haematocolpos due to imperforate hymen is generally achieved by making a cruciate incision on the hymen and evacuating the old blood under anesthesia.

With regard to uterine fibroid, which is the commonest benign tumour of female reproductive tract, a review of the literature has shown several case reports of urinary retention secondary to an impacted pelvic mass, uterine fibroid being one of them. (5), (6).

However,it is unusual for a 79-year-old to have such a large fibroid that can cause urinary retention. This is because the oestrogen which nourishes the fibroid is no more produced from the ovaries after menopause with resultant shrinkage of pre-existing fibroids. In this case, although the fibroid was still big enough to cause urinary retention it was already calcified. Other causes of urinary retention in old women such as lieyomyosarcoma or any other pelvic malignancy must be ruled out.

CONCLUSION

Just like men, urinary retention can occur in women. However unlike men, it is less common and when it presents it tends to confuse some unexperienced medical officers. The diagnosis of haematocolpos is easy but it may be overlooked and lead to unnecessary diagnostic tests in the emergency departments if a careful and comprehensive physical and genital examination is not performed. Therefore the possibility of haematocolpos should always be kept in mind while evaluating adolescent girls with a pelvic mass, intermittent lower abdominal pain, and acute urinary retention. Early diagnosis and adequate treatment may prevent future complications.

Although a huge uterine fibroid is uncommon at 79 years, it can still be the cause of urinary retention in elderly women.

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