



World Family Medicine Journal

incorporating the Middle East Journal of Family Medicine

ISSN 1448-4196

July 2010 - Volume 8, Issue 6

Chief Editor:

Abdulrazak Abyad
MD, MPH, AGSF, AFCHSE
Email: aabyad@cyberia.net.lb

Assistant to the Editor

Ms Rima Khatib
Email: Rima@amc-lb.com

Reporter and Photographer

Dr Manzoor Butt,
Email: manzor60@yahoo.com

Ethics Editor and Publisher
Lesley Pocock
medi+WORLD International
11 Colston Avenue
Sherbrooke 3789
AUSTRALIA

Phone: +61 (3) 9005 9847
Fax: +61 (3) 9012 5857
Email:

lesleypocock@mediworld.com.au

Editorial enquiries:

aabyad@cyberia.net.lb

Advertising enquiries:

lesleypocock@mediworld.com.au

While all efforts have been made to ensure the accuracy of the information in this journal, opinions expressed are those of the authors and do not necessarily reflect the views of The Publishers, Editor or the Editorial Board. The publishers, Editor and Editorial Board cannot be held responsible for errors or any consequences arising from the use of information contained in this journal; or the views and opinions expressed. Publication of any advertisements does not constitute any endorsement by the Publishers and Editors of the product advertised.

The contents of this journal are copyright. Apart from any fair dealing for purposes of private study, research, criticism or review, as permitted under the Australian Copyright Act, no part of this program may be reproduced without the permission of the publisher.

2 Editorial

Abdul Abyad

Original Contribution / Clinical Investigation

3 <-- Jordan -->

Rhinitis During Pregnancy : Risk Factors And Management

Mahmoud Mashagbeh, Ahmad Sbaihat, Hind Harahsheh MD

8 <- Saudi Arabia -->

Qat Chewing and Autoimmune Hepatitis: True Association or Coincidence ?

Hind I Fallatah, Hisham O Akba

12 <-- Saudi Arabia -->

Hypertensive patients attending military family medicine clinics in Tabuk, Saudi Arabia

Abdul-Aziz F. Alkabbaa

Review Articles

16 <-- Pakistan -->

Irritable Bowel Syndrome (IBS): Clinical approach in Family Practice

Firdous Jahan

Education and Training

19 <-- International -->

Global Competencies in Family Medicine

William Cayly Jr, Lesley Pocock, Victor Inem, Mohsen Rezaeian

Clinical Research and Methods

33 <-- Jordan -->

Atropine Penialization versus Occlusion Therapy in Amblyopia

Mohammad Abdo Ja'ara k

Case Report

35 <-- Jordan -->

Necrotizing fasciitis induced by self-injection of kerosene

Hani M.Kafaween, Haitham Rbehat, Majida Sweis, Khitam Nimer Hawil

From the Editor



Abdulrazak Abyad
(Chief Editor)

Email: aabyad@cyberia.net.lb

In this the sixth issue this year we have a major paper on Global Competencies in Family Medicine, the result of an international IFPCRN collaboration. The Research and Author team was drawn from around 30 countries and 15 countries contributed national data. These countries however represented close to two thirds of our global population and included Low, Middle and High Income countries (based on World Bank PPP 2005).

Other papers this issue discuss hypertension, Qat chewing, self injection of kerosene, causes of blindness, use of atropine, rhinitis and pregnancy and irritable bowel syndrome.

A paper from King Saud Bin Abdul-Aziz University characterized adult patients with hypertension attending Armed Forces family medicine clinics in Tabuk, Saudi Arabia. Ten percent of all patients attending the Armed Forces family medicine clinics in 2003 were selected by stratified systematic random sampling. The prevalence of hypertension was 7.3%. The authors concluded that hypertension is common among patients attending family clinics in Tabuk; the prevalence increases with age. Patients with hypertension receive more health education and follow up than do patients without hypertension. Evaluating the content and outcomes of the education and follow-up visits could help to develop more effective interventions.

A case report from King Abdul Aziz University Hospital Jeddah looked at Qat Chewing and Autoimmune Hepatitis Association. The authors reported three male patients from Yemen with

autoimmune hepatitis (AIH) associated with Qat chewing. Two of them had advanced cirrhosis at diagnosis and all of them had positive immune profile for type1 AIH. Treatment with Prednisolone and Azathioprine resulted in remission in the three patients. The authors stressed that Qat chewing may be a risk factor for AIH, that respond well to treatment. More data is needed for understanding this association.

A Case report from Jordan reported on Self- injection of kerosene, which is a rare occurrence. A 17 year old single female, was admitted through the emergency room (ER) following an argument with her family. The patient had injected an unknown amount of kerosene in both cubical fossae of upper limbs about five days prior to presentation in the ER.

A study was conducted at the major military hospital in north of Jordan (Prince Rashed Military Hospital) to determine the most common causes of blindness in north Jordan among patients attending ophthalmology clinics. This study showed that cataract, diabetic retinopathy and glaucoma were the main causes of blindness and loss of vision.

A prospective randomized study that was conducted at King Hussein Medical Center to evaluate the efficacy of atropine penalization in the treatment of amblyopia in comparison with conventional patching. The authors concluded that atropine penalization is as effective as patching in the treatment of anisometropic amblyopia, though the speed of recovery is slower.

A review paper from Pakistan on irritable bowel Syndrome (IBS) discussed the clinical approach in family Practice. The author stressed that IBS is a chronic, relapsing gastrointestinal problem, characterized by abdominal pain, bloating, and changes in bowel habit. The author said that a caring doctor-patient relationship is the first step in management. Other interventions may be helpful to various degrees.

A paper from Jordan looked at the risk factors of rhinitis during pregnancy. A total of two hundred and fifty primigravida aged 19-28 years (mean age 25) who were referred to otorhinolaryngology

clinic as part of antenatal care was studied. Rhinitis and nasal congestion frequently occur during pregnancy (30%) and are related to hormonal changes. The authors concluded that smoking and allergy are the major risk factors for rhinitis in pregnancy, and the quality of pregnancy can be improved by modification of treatment strategies.

Rhinitis During Pregnancy : Risk Factors And Management

Mahmoud Mashagbeh MD*

Ahmad Sbaihat MD**

Hind Harahsheh MD***

*Department of Obstetrics & Gynecology, Royal Medical Services, Jordan.

** Department of otorhinolaryngology, Royal Medical Services, Jordan.

*** Department of Radiology, Royal Medical Services, Jordan.

Correspondence:

Dr. Ahmad Sbaihat, P.O Box 867 Amman 11953 Jordan.

Email: drsbaihat@hotmail.com

Introduction

Pregnancy rhinitis is a very common condition(1) , it is defined as nasal congestion in the last six or more weeks of pregnancy, without other signs of respiratory tract infection and with no known allergic cause, with complete resolution of symptoms within two weeks after delivery(2). About 30% of women suffer from nasal symptoms during pregnancy(3). Pregnant women should be informed about this cause of nasal congestion, and how to handle it. Although all kinds of medications should be avoided during pregnancy, the majority of pregnant women receive at least one drug and 6 % of them during the high-risk period of the first trimester(4).

There is no cure known, but symptomatic treatment may be needed. It is important to remember that upper airway disease, if uncontrolled , has a significant adverse effect on quality of pregnancy and may affect the fetus(5,6).

The pathophysiology of pregnancy rhinitis is not known but is possibly multifactorial(7). It appears to result from the increased production of estrogen(8), because of increased blood flow to the nasal turbinates along with increased nasal glandular activity and relaxation of the nasal vascular smooth muscle (9).

The aim of our present study was to find out the risk factors of rhinitis during pregnancy and its management, to improve quality of pregnancy.

ABSTRACT

Objective: To find out the risk factors of rhinitis during pregnancy , discussion of a management strategy and how to improve the quality of the pregnancy.

Patients and Methods: A total of two hundred and fifty primigravida aged 19-28 years (mean age 25) who were referred to otorhinolaryngology clinic as part of antenatal care.

Results: Pregnancy can produce nasal congestion and require modification of treatment strategies. Rhinitis and nasal congestion frequently occur during pregnancy (30%) and are related to hormonal changes . Smoking and allergy (mainly house dust) are considered the major risk factors. Nasal saline washings are safe to relieve nasal congestion. Nasal decongestants give good temporary relief of the symptoms, and nasal corticosteroids may be administered to pregnant women when indicated.

Conclusion: Smoking and allergy are the major risk factors for rhinitis in pregnancy and a quality of pregnancy can be improved by modification of treatment strategies.

Key words: rhinitis, pregnancy, allergy.

Methods

The sample of this study was conducted in the period between March 2008 and April 2009, in Prince Zaid Ben Al-Hussein hospital in Al-Tafilah city, 200 km south of Amman-Jordan.

The study sample was two hundred and fifty primigravida women aged between 19 and 28 years who were referred to the otorhinolaryngology clinic as part of ante natal care. All ladies underwent a detailed history taking and a thorough general examination, systemic examination and examination of the ear, nose and throat including nasendoscopy.

All ladies asked about subjective nasal congestion upon all visits during and after their pregnancy. They also asked about the risk factors: smoking, asthma, house dust, hay fever and month of conception.

Patients who were diagnosed to have pregnancy rhinitis were given antenatal care information about their complaints and advised to do some physical exercises that had a decongesting effect on nasal mucosa like raising the head of the bed 45° when the nose is congested. The patients were advised to do washing of their nose by saline solution (5 ml of salt in 0.5 L of water); there were no restrictions on how often it may be used.

The patients were also advised to use one of the pharmacological agents, nasal decongestants, oral decongestants or nasal corticosteroids.

Results

Pregnancy rhinitis was present in 65 patients (26%) of all ladies involved in our study.

The irritating effects of smoking was found to induce nasal congestion, and 83% of the patients who had rhinitis were smokers.

In pregnant women known to have allergy (house dust mainly) it was found that 19% of them had increasing allergic symptoms during their pregnancy and returned to their

normal pre-pregnancy state after delivery.

No other risk factors were found to have a significant correlation with rhinitis during pregnancy, with respect to a hormonal effect.

Women who were informed on their first antenatal care visit were found to be significantly less worried about the nasal congestion during their pregnancy.

The physical exercise measures and the position of the head had a positive effect on sleep disturbances caused by nasal congestion and it decreased risk of snoring in most of the patients.

Nasal saline washings reduce the symptoms of rhinitis in most of the patients and it gives temporary relief, reduces the amount of secretions and removes crusts that impair the nasal airway.

Patients who used nasal decongestants had a good temporary relief for their symptoms. Some patients were given oral decongestants (pseudoephedrine); others were given intranasal corticosteroids which also has a good effect on relieving the symptoms.

Discussion

Rhinitis and nasal congestion frequently occur during pregnancy. Its incidence is 9-30% (11,12), and it is related to hormonal changes that occur during pregnancy (10,11). Although estrogen can produce nasal mucosal edema through a cholinergic action, other factors may also cause or influence nasal congestion associated with pregnancy; these include allergy, infection, stress and rebound rhinitis (13).

In some studies, smoking had the most risk factor for increased incidence of rhinitis in pregnancy (2,14,15), whereas hay fever and asthma had no significant influence on incidence (14).

Pregnant patients require careful consideration in the choice of therapy. Ideally, no medication should be used, particularly during the first trimester. If symptoms of

rhinitis interfere with maternal well-being, pharmacologic management is considered. The patients must be advised that no drug can be considered absolutely safe because most drugs cross the placenta and can be measured in fetal blood.

In our present study the major risk factors for rhinitis in pregnancy are smoking and allergy mainly to house dusts, and that is concordant with some other studies.

Although the safe pharmacologic agents, including oral or nasal, can be used in special indications, we recommend initially to educate the pregnant women in antenatal care visits via a physical exercise (head up position), and to use nasal saline washings to improve the quality of pregnancy.

These recommendations are mentioned in several other studies (5,8,15,18).

Conclusion

About 30% of pregnant women suffer from nasal symptoms. Smoking and allergy, especially house dust, are major risk factors for these symptoms.

We can improve quality of pregnancy by antenatal care information, and education of the pregnant regarding physical exercises and nasal saline washings.

In some special cases, nasal decongestants, nasal corticosteroids and oral decongestants can be used.

References

1. Ellegard EK. Clinical and pathogenetic characteristics of pregnancy rhinitis. *Clin Rev Allergy Immunol.* 2004 Jun; 26 (3) : 149-159.
2. Ellegard EK. The etiology and management of pregnancy rhinitis. *Am J Respir Med.* 2003; 2 (6): 469-475.
3. Gani F., Braidia A., Lombardi C., Del Giudice A., Senna GE., Passalacqua G. Rhinitis in pregnancy. *Eur Ann Allergy Clin Immunol.* 2003 Oct; 35(8): 306-313.

4. Vlastarakos PV, Manolopoulos L., Ferekidis E., Antsaklis a. & Nikolopoulos TP. Treating common problems of the nose and throat in pregnancy : what is safe?. *Eur Arch Otorhinolaryngol.* 2008 May; 265(5):499-508.
5. Ellegard EK. Pregnancy rhinitis. *Immunol Allergy Clin North Am.* 2006 Feb;26(1):119-135.
6. Incaudo GA.& Takach P. The diagnosis and treatment of allergic rhinitis during pregnancy and lactation. *Immunol Allergy Clin North Am.* 2006 Feb;26(1):137-154.
7. Ellegard EK & Karlsson NG. Nasal mucociliary transport in pregnancy. *Am J Rhinol.* 2000 Nov-Dec;14(6):375-378.
8. Lekas MD. Rhinitis during pregnancy and rhinitis medicamentosa. *Otolaryngol Head Neck Surg.* 1992 Dec;107(6 Pt 2):845-848.
9. Carol A. Curran, MS, RNC, OGNP. The effects of rhinitis, asthma, and acute respiratory distress syndrome as acute or chronic pulmonary conditions during pregnancy. *J Perinat Neonat Nurs.* 2006 ;20(2)147-154 .
10. Ellegard EK & Karlsson NG. & Ellegard LH. Rhinitis in the menstrual cycle, pregnancy and some endocrine disorders. *Clin Allergy Immunol.* 2007; 19:305-321.
11. Shushan S., Sadan O., Lurie S., Evron S., Golan A., & Roth Y. Pregnancy-associated rhinitis . *Am J Perinatol.* 2006 Oct; 23(7):431-433.
12. Incaudo GA. . Diagnosis and treatment of allergic rhinitis and sinusitis during pregnancy and lactation. *Clin Rev Allergy Immunol.* 2004 Oct; 27(2):159-177.
13. Mabry I. Rhinitis of pregnancy. *South Med J .* 1986 Aug; 79(8):965-971.
14. Ellegard E., Hellgren M., Toren k., & Karlsson NG. The incidence of pregnancy rhinitis. *Gynecol Obstet Inves.* 2000 ; 49(2)98:98-101.
15. Hoffmann TK., Wagenmann M., Kojda G., & Friebe-Hoffmann U. Symptoms and therapy for pregnancy rhinitis. *Z Geburtshilfe Neonatol.* 2004 Aug; 208(4): 126-132.
16. Leimgruber A. . Treatment of asthma and rhinitis during pregnancy and breast feeding. *Rev Med Suisse.* 2007 Apr 25; 3(108):1044-1046, 1048-1049.
17. Demoly P., Piette V., & Daures JP. Treatment of allergic rhinitis during pregnancy. *Drugs.* 2003;63(17): 1813-1820.
18. Mazzotta P., Loebstein R., & Koren G. Treating allergic rhinitis in pregnancy . Safety consideration.

Qat Chewing and Autoimmune Hepatitis - True Association or Coincidence

Dr Hind I Fallatah MBCh B,

Arab Board and Saudi Board of Internal Medicine, MACP.
Consultant Hepatologist Assistant professor
King Abdul Aziz University Hospital Jeddah
Saudi Arabia

Dr Hisham O Akbar MBCh B, FRCP

Associate professor Consultant Hepatologist
King Abdul Aziz University Hospital Jeddah
Saudi Arabia

Correspondence:

Dr Hind I Fallatah
Po box 9714 Jeddah 21423
Saudi Arabia
Fax +96626751149
Phone +966501267336
Email: hindfallatah@hotmail.com

ABSTRACT

Qat chewing is a long standing social-cultural habit in Yemen and East Africa. It has multiple adverse health effects including liver injury. We reported three male patients from Yemen with autoimmune hepatitis (AIH) associated with qat chewing. Two of them had advanced cirrhosis at diagnosis and all of them had positive immune profile for type1 AIH. Treatment with Prednisolone and Azathioprine results in remission in the three patients.

In conclusion: Qat chewing may be a risk factor for AIH that responds well to treatment, but more data is needed for understanding this association.

Introduction

Qat is a medium size tree known in Yemen as Gat or Khat. It is named scientifically as Cathaedlius (cathinone). Cathinone is a psycho stimulant substance which causes euophoria.(1) Qat chewing is a socio-cultural habit widely practiced in East Africa and Yemen,(2) but its practice in Yemen is more than other countries.(2,3) It has been estimated that up to 80% of Yemenis between 16-80 years have chewed qat on at least one occasion.(1) Qat chewing has been reported by both men and women of different age groups.(2) Recently because of increased immigration from Yemen and Africa to North America and Europe, qat chewing is increasingly recognized especially in the United Kingdom (UK).(3,4) The qat chewing habit in Yemen has great potential social and economic burdens. 40% of the country's water is used for its

irrigation and money spent on Qat has doubled 280% from 1990-1995.(1,3)

In addition to its socio-economic burden Cathinone can cause multiple health problems.(1) It is similar in structure and pharmacological activity to amphetamine.(5,6) . It can cause CNS, gastrointestinal, renal, genitourinary, cardiovascular , and hepatic toxicity. It also causes oral ulceration and increased risk of oral cancers.(1,2,3,7)

D- amphetamine is known to exert different forms of hepatotoxicity in-vivo and in-vitro when tested on hepatocytes.(8,9) Because of structural similarity qat is expected to cause similar toxic effects on the liver but the available data on this issue are few and sporadic. In this article we reported three patients from Yemen with autoimmune hepatitis possibly related to qat chewing habits.

Case presentations

First patient

A 21 year old Yemeni male patient high school student. He had jaundice for two years, abdominal distension for 2 weeks and disturbed sleep pattern for 2 days. There was no family history of liver disease. He started Qat chewing almost daily from the age of 15 years. He had no history of alcohol intake. See Table 1 for clinical findings and Tables 2 and 3 for lab results. Abdominal ultrasound showed coarse cirrhotic liver and a moderate amount of ascitic fluid. Upper gastrointestinal endoscopy (EGD) was normal. Ascitic fluid cell count and culture were negative for spontaneous bacterial peritonitis (SBP). Because of coagulopathy and advanced disease, liver biopsy was not performed. The diagnosis of AIH was based on the clinical and the immunological data. He was treated for hepatic encephalopathy with lactulose and started on oral prednisolone 30 mg daily. After 3 months of treatment his serum Alanine transferrase (ALT), aspartate amine transferrase (AST) and bilirubin came down but not to normal reference range. Azathioprine (AZA) 50mg daily was added. He had complete biochemical response after 12 month of treatment - the liver enzymes and bilirubin were completely normal. Prednisolone was gradually reduced to 5mg and AZA was continued. He sustained remission on treatment for 2 years then he went to back Yemen, resumed qat chewing and came back to our hepatology clinic after 6 months with elevated serum ALT 144U/L, AST197U/L and bilirubin 207umol/L. Prednisolone was increased to 30mg until he had remission. On his latest follow up his ALT, AST and bilirubin were normal and he was maintained on prednisolone 5mg and AZA 50mg daily.

Second patient

A 21 year old Yemeni male patient was diagnosed in April 2006 to have AIH. He had jaundice for 36 months, abdominal distension for 2 months and hepatic encephalopathy for one week. He was brought to the

emergency department by his brother comatose (in stage IV hepatic encephalopathy). He chewed qat for more than 6 years. He denied alcohol intake. He had no family history of liver disease, (Table 1) for clinical findings and Tables 2 and 3 for laboratory results. Abdominal ultrasound showed evidence of liver cirrhosis, small shrunken liver and moderate ascites. EGD showed grade III esophageal varices and portal hypertensive gastropathy. Similar to the first patient, because of advanced disease and coagulopathy liver biopsy was not obtained. He was diagnosed to have AIH based on clinical and immunological data. Ascitic fluid cell count and culture did not reveal evidence of bacterial peritonitis. He received treatment for HE with lactulose and metronidazole, and treatment for AIH prednisolone 40 mg daily. Over 2 weeks he had gradual improvement and was discharged on prednisolone 40mg to be followed in the clinic. Four weeks after starting treatment his ALT, AST, and bilirubin significantly improved but he developed severe proximal myopathy. AZA was started and prednisolone was reduced to 15 mg (the dose that he was able to tolerate without having proximal myopathy). He had complete biochemical response after 20 months of treatment. Early in 2008 he went to Yemen, stopped treatment and resumed Qat chewing. He had a flare of AIH (jaundice, ALT 728u/L, AST 949u/L TBil 372umol/L Alp357u/L). We resumed him on AZA 75mg and predisolone 15 mg daily. The liver functions improved over 3 months but did not go back to normal. On his last visit his liver functions were ALT 135u/L, AST 87u/L, TBil42umol/L, ALP 282u/L. He is still on active follow up with our clinic.

Third patient

A 37 year old recently came from Yemen for assessment of 6 month history of jaundice. He denied alcohol intake and there was no family history of liver disease. He chewed qat for more than 20 years. The rest of the history was unremarkable.

See Table 1 (next page) for clinical findings and Tables 2 and 3 for

laboratory results. Abdominal ultrasound examination showed coarse cirrhotic liver, mild splenomegaly and there was no ascites. He had liver biopsy that showed chronic hepatitis with features consistent with AIH (interface hepatitis and chronic inflammatory cells infiltration mainly plasma cells and lymphocytes). He was started on prednisolone 30 mg daily and AZA was added after 2 months. He completed 10 months of treatment; his liver enzymes and bilirubin are normal (ALT 51u/L, TBil 22umol/L)

Testing for Wilson's disease by 24 hour urine copper and Serum copper were negative for all the patients.

Complete blood count (CBC) at the time of diagnosis [white blood cells (WBC), hemoglobin (Hg), platelets count (plat)]

Liver function tests LFT [serum alanine aminotransferase (ALT), Aspartate Amino Transferase (AST), alkaline phosphatase (ALP), gamma-glutamyl transferase (GGT), total protein (TP), albumin (Alb), and total and direct bilirubin.]

Anti nuclear antibody ANA) done by indirect immunofluorescence (IIF) weakly positive 1/40 and strongly positive 1/1280, smooth muscle antibody (SMA) detected by ELISA, liver kidney microsomal-1(LKM-1) detected by ELISA, antimitochondrial (AMA) detected by ELISA, method normal range 5.4-16.1, and antinetrophil cytoplasmic antibody (ANCA) detected by IIF, immunoglobulin-G (IgG) level by the nephelometer. Hepatitis serology hepatitis B virus (HBSAg, HBeAg, HBeAb, HBcAb), hepatitis C virus (HCVAb) and in patients with acute presentation the result of Hepatitis A virus (HAVAb-IgM)

	First patient	Second patient	Third patient
Jaundice	+	+	+
Ascites	Mild -moderate	Moderate	No Ascites
Hepatic encephalopathy	Grade 1-2	Grade IV	No encephalopathy

Table 1: Clinical assessment of the three patients at the time of diagnosis

	Normal range	First patient	Second patient	Third patient
Hg	12-17g/dl	12.9	10.77	12
WBC	3-11KU/l	12.8	5.5	3.7
Plat. cont	100-400KU/L	195	332	102
PT (INR)	1-1.4 seconds	2.6	2.4	1.3
ALT	5-65U/L	164	517	120
AST	5-50U/L	326	713	147
ALP	50-136U/L	208	260	170
GGT	5-85U/L	50	54	135
TBil/DBil	0-5umol/L	240/149	548/395	89/76
TP	64-82g/L	78	75	76
ALB	35-50g/L	18	21	25

Table 2: Laboratory results at the time of diagnosis

	First patient	Second patient	Third patient
ANA	1:640 moderately positive	1:640 moderately positive	1:160 mildly positive
SMA	Strongly positive	Strongly positive	Weakly positive
LKMI-1	Negative	Negative	Negative
P-ANCA	Positive	Negative	Negative
AMA	Negative	Negative	Negative
IGG	32	34	25
HBV serology	Negative	Negative	Negative
HCVAb	Negative	Negative	Negative
HAVAb	Negative	Negative	Negative
Bilharizal AB	Negative	Negative	Negative

Table 3: Immunological results for the three patients

References

- 1- Ghanem S, Zindani J, Zindani Z. Qat: The plague of Yemen. Sports, Health & Lifestyle on WWW. yobserver.com Feb/26/2008.
- 2- El-Wajeh YA, Thornhill MH. Qat and its health effects. *Br Dent J*. 2009;206:17-21.
- 3- Nabuzoka D, Badhade F A. Use and perceptions of qat among young Somalis in a UK city. *Addiction Res* 2000, 8: 5-26.
- 4-Dhaifalah I, Santavý J. Khat habit and its health effect. A natural amphetamine. *Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub*. 2004;148:11-5.
- 5-Al-Motarreb A, Baker K, Broadley KJ. Khat: pharmacological and medical aspects and its social use in Yemen. *Phytother Res*. 2002;16:403-13.
- 6-Feyissa AM, Kelly JP. A review of the neuropharmacological properties of khat. *Prog Neuropsychopharmacol Biol Psychiatry*. 2008;32:1147-66.
- 7-Hassan NA, Gunaid AA, El Khally FM, Murray-Lyon IM. The subjective effects of chewing Qat leaves in human volunteers. *Ann Saudi Med*. 2002;22:34-7
- 8-Carvalho F, Remião F, Soares ME, Catarino R, Queiroz G, Bastos ML. d-Amphetamine-induced hepatotoxicity: possible contribution of catecholamines and hyperthermia to the effect studied in isolated rat hepatocytes. *Arch Toxicol*. 1997;71:429-36.
- 9- Vitcheva V, Kondeva-Burdina M, Mitcheva M. D-amphetamine toxicity in freshly isolated rat hepatocytes: a possible role of CYP3A. *Arh Hig Rada Toksikol*. 2009;60:139-45.
- 10- Kennedy JG, Teague J, Rokaw W, Cooney E. A medical evaluation of the use of qat in North Yemen. *Soc Sci Med*. 1983;17:783-93.
- 11-Coxal G, Rampes H. Adverse effects of khat: a review. *Advance in psychiatric treatment* 2003;9:456-463.
- 12- Hassan NA, Gunaid AA, Murray-Lyon IM. Khat (*Catha edulis*): health aspects of khat chewing. *East Mediterr Health J* 2007;13:706-18.
- 13- Date J, Tanida N, Hobara T. Qat chewing and pesticides: a study of adverse health effects in people of the mountainous areas of Yemen. *Int J Environ Health Res*. 2004 ;14:405-14.
- 14- Hautekeete ML. Hepatotoxicity of antibiotics. *Acta Gastroenterol Belg*. 1995;58:290-6.
- 15- Ganne-Carrié N, de Leusse A, Guettier C, et al. Autoimmune hepatitis induced by fibrates. *Gastroenterol Clin Biol*. 1998;22:525-9.
- 16- Floreani A, Niro G, Rosa Rizzotto E, Antoniazzi S, Ferrara F, Carderi I, et al. Type I autoimmune hepatitis: clinical course and outcome in an Italian multicentre study. *Aliment Pharmacol Ther*. 2006;24:1051-7.
- 17- Ferrari R, Pappas G, Agostinelli D, Muratori P, Muratori L, Lenzi M, et al. Type 1 autoimmune hepatitis: patterns of clinical presentation and differential diagnosis of the acute type. *Q J Med* 2004; 97: 407-412.
- 18- Czaja1A and Freese D. Diagnosis and Treatment of Autoimmune Hepatitis. *Hepatology*. 2002;36: 479-497.
- 19- Bajubair MA, Elrub AA, Bather G. Hepatic viral infections in Yemen between 2000-2005. *Saudi Med J*. 2008;29:871-4.
- 20- el Guneid AM, Gunaid AA, O'Neill AM, Zureikat NI, Coleman JC, Murray-Lyon IM. Prevalence of hepatitis B, C, and D virus markers in Yemeni patients with chronic liver disease. *J Med Virol*. 1993;40:330-3.
- 21- Gunaid AA, Nasher TM, el-Guneid AM. Acute sporadic hepatitis in the Republic of Yemen. *J Med Virol*. 1997 ;51:64-6

Hypertensive patients attending military family medicine clinics in Tabuk, Saudi Arabia

Abdul-Aziz F. Alkabbaa

Consultant Family Medicine,
Associate Dean for Academic Affairs,
Faculty of Medicine,
King Saud Bin Abdul-Aziz University for Health Sciences,
King Fahad Medical City, Riyadh,
Saudi Arabia

ABSTRACT

Objective: To characterize adult patients with hypertension attending Armed Forces family medicine clinics in Tabuk, Saudi Arabia.

Methods: Ten percent of all patients attending Armed Forces family medicine clinics in 2003 were selected by stratified systematic random sampling. Data about age, sex, diagnosis, referrals, follow up, health education, co-morbidities were collected from patients' (age >18 yrs) medical records using a pilot-tested data collection form and analyzed using SPSS 10 (P <.05). Hypertension was defined according to WHO criteria.

Results: The prevalence of hypertension was 7.3% (n =7644; mean age, 33.5 13.1 years). Patients with hypertension were significantly older (53.6 versus 33.5 years, respectively) and significantly more likely to have diabetes mellitus (44.3% versus 7.1%, respectively) than patients without hypertension. Patients with hypertension were followed up (78.8% versus 3.2%, respectively) and offered a health education session (75% versus 14.4%, respectively) significantly more often than were patients without hypertension.

Conclusion:

Hypertension is common among patients attending family clinics in Tabuk; the prevalence increases with age. Patients with hypertension receive more health education and follow up than do patients without hypertension. Evaluating the content and outcomes of the education and follow-up visits could help to develop more effective interventions.

Introduction

Hypertension is a chronic condition that causes serious morbidity and mortality in many countries, including Saudi Arabia. The associated socioeconomic burden on the individual, family, and community is tremendous. Worldwide surveys show that the prevalence of hypertension varies widely in different countries, ranging from 3.4% in men in rural India to 72.5% in women in Poland(1). The overall worldwide prevalence among the adult population is reported to be 26.4% (26.6% and 26.1% for men and women, respectively). Should the current trend continue, the prevalence is projected reach 29.2% (29.0% and 29.5% for men and women, respectively) by the year 2025, totaling about 1.6 billion cases. Two-thirds of cases will occur in developing countries(2).

Rapid socioeconomic development in Saudi Arabia, with extensive expansion of educational and health facilities programs (including environmental health), has led to a reduction in the incidence of communicable diseases. As a result, awareness of the public health importance of chronic non-communicable diseases, such as hypertension, has increased. Hypertension is responsible for a large proportion of outpatient consultations. Obtaining reliable information about the prevalence of hypertension and associated factors is crucial for developing a comprehensive strategy for preventing and controlling hypertension.

North West Armed Forces Hospital Program (NWAFFH) in Tabuk was established by the Ministry of Defense and Aviation, and it is one of the most modern and well-equipped military hospitals in the kingdom of

Saudi Arabia. Providing quality health care services as required for the optimal care and treatment for patients is within the scope of the Saudi Arabian Armed Forces Medical Services Directorate responsibilities. General practitioner services for the military community and hospital employees are provided on an outpatient basis by the Family Medicine Clinics.

The objectives of this study, the first of its nature and magnitude, were to determine the proportion and characteristics of adult patients (18 years of age and older) with hypertension who attended NWAFFH Family Medicine Clinics in Tabuk City. The results of the study will help to develop appropriate health policies and programs for preventing, detecting, and controlling hypertension in the community.

Subjects and Methods

The current study was a cross-sectional study, conducted from January 1, 2003 through to December 31, 2003. The study population was all patients 18 years of age and older who attended NWAFFH Family Medicine Clinics in Tabuk, Saudi Arabia during the study period. Tabuk City is the Capital of the North West region of Saudi Arabia, and has a population of approximately 500,000. Stratified systematic random sampling was used to select 10% (14,694) of the Family Medicine Clinic encounters during the study period from the tally sheets used for daily encounter registration. To ensure selection of a random representative sample, the strata included all working days of the week for the entire study period.

Physicians collected the following data from patients' medical records using a pilot-tested data collection form: age; sex; provisional and final diagnosis; referral to specialty clinics in the hospital and feedback; follow up appointments; health education documentation; chronic comorbidities; smoking status, and the frequency of visits per year. The study was approved by a research and ethics committee at

North West Armed Forces Hospital in Tabuk; permissions were obtained from the appropriate related authorities.

Collected data was checked for completeness before being fed into a personal computer. A double entry method was used to decrease data entry errors. The International Classification of Health Care Problems in Primary Care (ICHPPC-2) was used for disease and health problem classification. Statistical analysis was performed using Statistical Package for Social Sciences (SPSS-10) with the level of statistical significance set at $P < .05$.

Hypertension was defined according to WHO criteria: systolic blood pressure >140 mmHg or diastolic pressure > 90 mmHg or both, or currently receiving pharmacologic or non-pharmacologic treatment for hypertension.

Results

Of the patient encounters selected ($n = 14,694$), 556 (3.8%) were excluded due to the incomplete information in some study variables. These patients did not differ significantly from the included patients in age or sex. All of the remaining 14,138 encounters were analyzed. This communication dealt only with subjects who are 18 years or above ($n = 7644$). The mean age of the adult patients (18 years of age and older) who attended the clinics during the study period was 33.48 years (SD, 13.10; range, 18-97 years).

Tables 1 and 2 (next page) show the age and sex distribution of all subjects and subjects with hypertension, respectively. Of the 7,644 adult patients, 557 had hypertension, giving an overall prevalence of 7.3%. The proportion of women in both groups slightly exceeded that of men (approximately 52%). For both sexes in both groups, more than 80% were younger than 45 years of age and less than 4% were older than 65 years of age. The mean age of all subjects was 33.48 years (SD, 13.10), with women being significantly younger than men (32.8 years versus 34.2 years). Patients

with hypertension were significantly older than were patients without hypertension (53.6 versus 33.5 years, respectively). Women were more likely to have hypertension than were men, and women with hypertension were older than men with hypertension; however, these differences were not significant.

Table 3 compares the characteristic of patients with and without hypertension. Patients with hypertension received significantly more health education and follow up visits than did patients without hypertension; patients with hypertension were also significantly older. Patients with hypertension were more likely to have diabetes mellitus than were patients without hypertension. Women were affected more than males, but this difference was not significant. Among patients with hypertension, there were no significant sex-related differences for health education, co-morbid diabetes, or follow up visits (Table 4).

Discussion

Hypertension is one of the most common non-communicable diseases worldwide, including in Saudi Arabia. Our data showed that more women than men attended the clinics during the study period, which follows the pattern typical for primary care clinics in Saudi Arabia(3).

The overall prevalence of hypertension in this study was about 7.3 %. In similar settings for the Ministry of Defense and Aviation and the Ministry of Health, the prevalence of hypertension among attending adult patients ranged from 3.1% to 10% and 2.4% to 30%, respectively(4-6). Recent community surveys showed that the overall prevalence among adults in different regions of the country was 26.1%(7). In other countries in the region, hypertension is estimated to affect 20-32.1 % of adult population(8,9,10,11). Various population-based studies conducted in other developing countries have shown that the prevalence of hypertension ranges from 9% to 30% among adults(12,13). In highly developed countries, the reported

Age in years	Female, n (%)	Male, n (%)	Total, N (%)
18-24	1213 (30.7)	993 (26.9)	2206 (28.9)
25-44	2122 (53.7)	1992 (54.0)	4114 (53.8)
45-64	485 (12.3)	559 (15.2)	1044 (13.7)
65 and older	135 (3.4)	145 (3.9)	280 (3.7)
Total	3955 (51.7)	3689 (48.3)	7644 (100)
Mean (SD)	32.83 (12.99)	34.18 (13.20)	33.48 (13.10)

P value < .0001

Table 1: Age and sex distributions of the study sample

Age in years	Female, n (%)	Male, n (%)	Total, N (%)
18-24	2.1 (6)	1.1 (3)	1.6 (9)
25-44	28.5 (75)	23.7 (63)	24.8 (138)
45-64	49.5 (144)	54.5 (145)	51.9 (289)
65 and older	22.7 (66)	20.7 (55)	27.1 (121)
Total	52.2 (291)	47.8 (266)	100 (557)
Prevalence of hypertension	7.4 %	7.2%	7.3%
Mean (SD)	54.03 (14.08)	53.06 (13.41)	53.57 (13.76)

Table 2: Age and sex distributions of patients with hypertension

prevalence of hypertension among adults ranges from 38% to 55% in Europe and is 28% in North America(14). Making comparisons among these studies is problematic because of the difference in the definitions and methodologies used and the characteristics of the populations studied. Nonetheless, the message is clear: hypertension among adults is an important problem, and meaningful interventions are needed.

This study showed the significant relationship between hypertension and advancing age in both sexes. Cross-sectional surveys and prospective cohort studies have consistently demonstrated a positive relationship between age and blood pressure in the Kingdom of Saudi Arabia and in most populations regardless of geographical, cultural, and socioeconomic characteristics (3-7,15,16).

The association between sex and hypertension is less clear. Some studies have reported that hypertension was more prevalent in men, while others have reported the opposite. Many studies have reported that hypertension is more prevalent among men at younger ages and more prevalent among women at older ages. The association between hypertension and sex is complex and can be confounded by other factors such as socioeconomic status and education. Overall, no apparent sex predilection has been demonstrated (1-2).

Our data showed that patients with hypertension received more health education sessions during their clinic visits than did patients without hypertension. This finding was not unexpected: hypertension is associated with many risk factors and is itself a risk factor for many serious diseases and complications. In most cases, management of hypertension

entails life-long pharmacologic and non-pharmacologic interventions. In order to encourage adherence to these life-long regimens, continuing education that promotes positive attitudes and behaviors is needed (17).

Patients with hypertension had more scheduled visits than did patients without hypertension. This finding was also expected for the same reasons discussed above. While follow up visits are necessary, the economic considerations must be revisited. Consultations for hypertension were shown to account for 67% of the direct costs of managing patients with hypertension in Eastern Saudi Arabia (18). It should be noted that patients with hypertension were offered the same health education and follow up services regardless of age, sex, or co-morbidity; this is a welcome finding.

Variable	Hypertension		X ^{2***}	DF**	P *
Age (years)	% No (n = 7087)	% Yes (n = 557)			
18-24	31.0	1.6	1426.5	3	.001
25-44	56.9	24.8			
45-64	10.7	51.9			
65 and older	2.2	21.7			
Sex					
Female	51.7	52.2	0.805	1	.42
Male	48.3	47.2			
Health Education					
No	85.6	24.2	1269.5	1	.001
Yes	14.4	75.8			
Diabetes Mellitus					
No	92.9	55.7	806	1	.001
Yes	7.1	44.3			
Follow up					
No	36.6	21.2	54.5	1	.001
Yes	64.3	78.8			

*P, P-value; **DF, Degrees of freedom; *** 2, P-value, Chi Square

Table 3: Characteristic of the study population

Variables	Male	Female	x ^{2***}	DF**	P*
Age (years)	% No (n)	% Yes (n)			
18-24	2.1 (6)	1.1 (3)	1.929	3	.587
25-44	25.8 (75)	23.7 (63)			
45-64	49.5 (144)	54.5 (145)			
65 and older	22.7 (66)	20.7 (55)			
Health Education					
Yes	24.4 (71)	24.1 (64)	0.926	1	.503
No	75.6 (220)	75.9 (202)			
Diabetes Mellitus					
Yes	54.0 (157)	57.5 (153)	0.397	1	.220
No	45.0 (134)	42.5 (113)			
Follow up					
Yes	21.7 (63)	20.8 (53)	0.82	1	
No	78.3 (227)	79.1 (210)			
Total	291	266			

*P, P-value; **DF, Degrees of freedom; *** 2, P-value, Chi Square

Table 4: Characteristics of patients with hypertension

The prevalence of diabetes mellitus in patients with hypertension was nearly 40% in our sample, in accordance with previously reported figures (19,20). The prevalence of multi-morbidity is high and increases significantly with age in both men and women. Patients with multi-morbidity who are seen in family practice represent the rule rather than the exception, and new health care models must be developed to meet the needs of these patients(21).

Conclusion

Hypertension is a common problem in patients attending NWAFFH family medicine clinics in Tabuk City, Saudi Arabia. The prevalence of hypertension increases with age and hypertension is more common among patients with diabetes. Patients with hypertension receive more health education messages and follow up visits than do patients without hypertension, as is appropriate. The content and outcomes of these messages and follow up visits should be evaluated further in order to develop interventions that are more effective.

Our data indicates that hypertension affects a large proportion of adults in Tabuk and suggests that many patients known to have hypertension are not visiting the family clinics and that many individuals may have undiagnosed hypertension. Future intervention strategies should target primordial, primary, and secondary prevention. Guidelines for pharmacologic and non-pharmacologic management need to be developed and standardized. It is anticipated that implementation of such guidelines would lead to improved patient outcomes at a lower cost.

References

- 1- Kearney P, Whelton M, Reynolds K, Whelton P, He J. Worldwide prevalence of hypertension: a systematic review. *J Hypertens* 2004; 22(1): 11-19
- 2- Kearney P, Whelton M, Reynolds K, Whelton P, He J. Global burden of hypertension : analysis of worldwide data. *Lancet*,2005;365(9455): 317 - 223.
- 3- Statistics Year Book 2002-2003. Ministry of Health, Riyadh Saudi Arabia
- 4- Nazim Uddin K. Prevalence of hypertension in Saudi Arabia . *The Practitioner* 1994;5 (11):905 -806.
- 5- Mahfouz Z, al-Erian R. Hypertension in Assir region , south western Saudi Arabia: an epidemiologic study. *Southeast Asian J Trop Med and Public Health* , 1993; 24(2) : 284 - 286.
- 6- Kalantan K, Mahmoud A, Al-Taweel A, Abdulghani H. Hypertension among attendants of primary health care centers in Al-Qassim region, Saudi Arabia. *Saudi M J* 2002; 22(1): 960 -963.
- 7- Alnozha M, Abdullah M, Arafa M, Khalid M, Al Mazrou Y, Al-Matoog M, Almarzougki K, Al-Khadra A, Nouh M, Al-Harathi S, Al-Shahid M, Al-Moberreek A. Hypertension in Saudi Arabia. *Saudi M J* 2007; 28(1): 77 -84.
- 8- Hasab A, Jaffer A, Hallaj Z,. Blood pressure patterns among the Omani population. *East Mediterranean Health Journal* , 1999; 5(1): 46 - 54.
- 9- Saaaf-Zadegan N, Boshtam M, Mostafavi S, Rafiei M. Prevalence of hypertension and associated risk factors in Islamic Republic of Iran. *Health Journal*, 1999; 5(5): 992 - 1001.
- 10- Bener A, Al-Suwaidi J, Al-Jaber K, Al-Marri S, Dagash M, Elbagi I. The prevalence of hypertension and its associated risk factors in a newly developed country. *Saudi M J* 2004;25(7) : 918 - 922.
- 11- Altun B, Arici M, Nergizoglu G, Derici U, Karatan O, Turgan C, Sindel S, Erbay B, Hasanoglu E, Caglar S. Prevalence, awareness , treatment and control of hypertension in Turkey(the patent T study) in 2003. *J Hypertens* 200; 23(10): 1817 - 1823.
- 12- Edwards R, Unwin N, Mugusi F, Whiting D, Rashid S, Kissima J, Aspray T, Aberti K. Hypertension prevalence and care in an urban and rural area of Tanzania . *J hypertens* 2000, 18(2): 45 - 152
- 13- Allah A, Inamo A, Larabi L, de Gademaris R. Arterial hypertension in the French Caribbean regions : gender related differences. *Arch Mal Cour Vaiss*, 2005; 98(7-8): 845 -849.
- 14- Wall-Mair K, Cooper R, Banegas J, Giamapaoli S, Hens H, Loffres M, Kastariem M, Poulter N, Primatseta P, Artalejo F, Stagnayr B, Thawm F. Hypertension prevalence and blood pressure levels in 6 European countries, Canada and the United States. *JAMA*, 2003;289(18): 2363 -2369
- 15- Erem C, Hacıhasangoglu A, Kocak M, Deger O, Tobas M. Prevalence of prehypertension and hypertension and associated risk factors among Turkish adults: Trabzon Hypertension Study. *J Public Health*,2008:1-2
- 16- Rampal L, Rampal S, Azhaar S, Rahman A. Prevalence, awareness, treatment and control of hypertension in Malaysia: a national study of 16440 subjects. *Public Health*, 2008 122(1): 11-18.
- 17- Bell R, Kravitz R. Physician counseling for hypertension: what do doctors really do? *Patient educ Couns*, 2008; 72(1): 115 -121.
- 18- Al-Shahri M , A. Mandil , Elzubier A, Hanif M. Epidemiological aspects and cost of managing hypertension in Saudi Arabian primary health care centre. *Eastern Mediterranean Health Journal*, 1998;4(3): 493 -501
- 19- Al-Shehri A. Blood pressure control among type 2 diabetics. *Saudi M J* , 2008; 29(5): 718 - 722.
- 20- L-Tuwaijri A, Al-Rukban A. Hypertension control and co-morbidities in primary health care centers in Riyadh. *Ann Saudi Med*, 2006; 26(4) ; 266 -271.
- 21- Fortin, M., Bravo, G., Hudon, C., Lapointe, L.. Prevalence of Multi-morbidity Among Adults Seen in Family Practice *Ann Fam Med*. 2005 May; 3(3): 223-228.

(References continued from page 19)

40. Creed F, Ratcliffe J, Fernandez L, et al . Health-related quality of life and health care costs in severe, refractory irritable bowel syndrome. *Ann Intern Med* 2001;134:860-8.
41. Bray BD, Nicol F, Penman ID, et al . Symptom interpretation and quality of life in patients with irritable bowel syndrome. *Br J Gen Pract* 2006;56:122-6.

Irritable Bowel Syndrome (IBS): Clinical approach in Family Practice

Dr. Firdous Jahan

Assistant Professor, Family Medicine Dept.
Aga Khan University Hospital, Karachi, Pakistan

Correspondence:

Email: firdous.jahan@aku.edu

IBS is a chronic, relapsing gastrointestinal problem, characterized by abdominal pain, bloating, and changes in bowel habit.(1) While the precise prevalence and incidence depends on the criteria used, all studies agree that it is a common disorder, affecting a substantial proportion of individuals in the general population and presenting frequently to general practitioners and to specialists.(2) IBS is troublesome, with a significant negative impact on quality of life and social functioning in many patients.(3,4) IBS generates significant health care costs. Approximately two thirds of IBS patients referred to secondary care show some form of psychological distress, most commonly anxiety. Diagnosing a patient who presents with abdominal pain and altered bowel habits can be challenging.(5) IBS also accounts for a significant number of visits to primary care physicians and is the second highest cause of absenteeism after the common cold. Approaches to managing IBS should be informed by psychological understanding, recognizing that the most important aspect of management is the relation between the patient and the physician.(6,7) Patients with IBS managed in primary care comprise the entire spectrum, from those with mild or ill defined symptoms to those with severe or persistent problems. The mind and body often combine to increase the misery of IBS patients.(8)

Normal motility, or movement, may not be present in the colon of a person who has IBS. It can be spasmodic or can even stop working temporarily. The lining of the colon, which is affected by the immune and nervous systems, regulates the flow of fluids in and out of the colon. When the contents inside the colon move too quickly, the colon loses its ability to absorb fluids. The result is too much fluid in the stool. In others, the movement inside the colon is too slow, which causes extra fluid to be absorbed. As a result, a person develops constipation. (9) A person's colon may respond strongly to stimuli such as certain foods or stress that would not bother most people. Small-bowel motor dysfunction with concomitant gastro paresis occurs more frequently in patients with IBS. Serotonin is a neurotransmitter, or chemical, that delivers messages from one part of the body to another. (10) People with IBS, however, have diminished receptor activity, causing abnormal levels of serotonin to exist in the GI tract. Stimulation of various chemo receptors and mechanoreceptors in the gut wall transmit signals via afferent neural pathways to the dorsal horn of the spinal cord and ultimately to the brain .(11,28)

IBS may be caused by a bacterial infection in the gastrointestinal tract. Studies show that people who have had gastroenteritis sometimes develop IBS, otherwise called post-infectious IBS. The development of irritable bowel syndrome following

infectious enteritis has been suspected clinically based upon a history of an acute diarrheal illness preceding the onset of irritable bowel symptoms in some pathogens included *Escherichia coli* O157:H7 and *Campylobacter jejuni*.(13) In severe infection, disruption of mucosal nerves may lead to irritability development of idiopathic bile acid malabsorption and increase in entero endocrine cells, T lymphocytes, and gut permeability has been demonstrated following acute *Campylobacter* enteritis, these changes persist for more than one year. Antibiotics may develop diarrhea related to alteration in colonic flora which will lead to reduced disaccharidase activity resulting in malabsorption of dietary sugars. Occult inflammatory bowel disease may have developed following infection. Microbes such as *Lactobacillus* strains may regulate immune responses directly in the host. Selective deficiencies of intestinal lactobacilli and bifidobacteria have been described in patients with Crohn's disease and IBS.(12)

IBS is generally diagnosed on the basis of a complete medical history that includes a careful description of symptoms and a physical examination.(14) Relevant history includes change in frequency of bowel movements, a change in appearance of bowel movements, feelings of uncontrollable urgency to have a bowel movement, difficulty or inability to pass stool, mucus in the stool and bloating. The following

have been associated with a worsening of IBS symptoms: large meals, bloating from gas in the colon, medicines, wheat, rye, barley, chocolate, milk products, alcohol drinks, caffeine, such as coffee, tea, or colas, stress, conflict, or emotional upsets. Women with IBS may have more symptoms during their menstrual periods, suggesting that reproductive hormones can worsen IBS problems.(12) Drinking carbonated beverages, such as sodas, may result in gas and cause discomfort. Chewing gum and eating too quickly can lead to swallowing air, which also leads to gas.(15,16)

In addition, people with IBS frequently suffer from depression and anxiety, which can worsen symptoms. (17) Similarly, the symptoms associated with IBS can cause a person to feel depressed and anxious. Stress, feeling mentally or emotionally tense, troubled, angry, or overwhelmed, can stimulate colon spasms in people with IBS.(18) The colon has many nerves that connect it to the brain. Like the heart and the lungs, the colon is partly controlled by the autonomic nervous system, which responds to stress. These nerves control the normal contractions of the colon and cause abdominal discomfort at stressful times.(19)

Although psychiatric illness often coexists with IBS, a clear causal relationship has not been shown. IBS might be a precursor to psychiatric illness; anxiety, major depression, panic disorder, social phobia, somatization disorder, and dysthymia have been identified in more than 50 percent of patients with IBS. IBS is more common in patients who abuse alcohol and in patients who have experienced physical or sexual abuse.(12) Many patients with IBS had stressful life events, such as divorce or a death in the family, before they developed symptoms. IBS among patients with chronic fatigue syndrome, fibromyalgia, and temporomandibular joint pain syndrome are high.(20,21) To date, no gold standard or marker for IBS exists. A cost-effective diagnostic approach that

uses the fewest tests and invasive studies is most desirable. As in all illnesses, the most valuable initial tools are a detailed history and physical examination. If alarm symptoms that suggest an underlying organic disease are uncovered, further testing usually is considered.(22) Scoring methods, subgroup classifications, laboratory studies, endoscopy, and psychiatric assessment are available to help guide the diagnosis in patients who present with abdominal pain. Several scoring systems for diagnosing IBS have been proposed. These scoring systems, which still are being validated, are useful for research and can help guide the diagnostic evaluation. The Rome III Criteria are the current standard for this definition. (23)

The Rome diagnostic criteria of Irritable Bowel Syndrome always presumes the absence of a structural or biochemical explanation for the symptoms and is made only by a physician.

Irritable Bowel Syndrome can be diagnosed based on at least 12 weeks (which need not be consecutive) in the preceding 12 months, of abdominal discomfort or pain that has two out of three of these features:

1. Relieved with defecation; and/or
2. Onset associated with a change in frequency of stool; and/or
3. Onset associated with a change in form (appearance) of stool.

Symptoms that Cumulatively Support the Diagnosis of IBS:

Abnormal stool frequency (may be defined as greater than 3 bowel movements per day and less than 3 bowel movements per week); abnormal stool form (lumpy/hard or loose/watery stool); abnormal stool passage (straining, urgency, or feeling of incomplete evacuation); passage of mucus; bloating or feeling of abdominal distension.

Patient subgroups (constipation-predominant, diarrhea-predominant, and pain-predominant), can be clinically useful:

IBS----D (diarrhea),
IBS----C (constipation),
IBS----M (mixed),
IBS----A (alternator).(12)

Red Flag symptoms which are NOT typical of IBS are pain that often awakens/interferes with sleep, diarrhea that often awakens/interferes with sleep, blood in stool (visible or occult), weight loss, fever, abnormal physical examination, anemia, chronic severe diarrhea and family history of colon cancer. Patients with alarm features should undergo the appropriate endoscopic, stool, and radiologic testing and referral to gastroenterologist.(24)

Many illnesses share some of the same symptoms as IBS. Some of these illnesses are serious and require aggressive evaluation and treatment. Differential diagnosis for patients who present with abdominal pain and altered bowel habits are celiac disease, colitis, Giardiasis, lactose/bile salt malabsorption, tropical sprue, small bowel bacterial over growth, carcinoma of the colon.(25)

Extra intestinal symptoms include impaired sexual function, dysmenorrhea, dyspareunia, and increased urinary frequency and urgency. They are also more likely to have hypertension, reactive airway disease, and rheumatologic syndromes, including fibromyalgia, non cardiac chest pain.(26,27)

Laboratory Tests:

Most authors suggest that all symptomatic patients should have a complete blood cell count. Determination of the erythrocyte sedimentation rate, thyroid-stimulating hormone (TSH) level, and electrolyte levels. Fecal occult blood testing and the testing of stool for ova and parasites are useful in patients with diarrhea. Lactose-malabsorption studies have limited value except in patients with diarrhea-predominant symptoms. Second line investigations includes routine flexible sigmoidoscopy and biopsy, lactose breath hydrogen test, Endomyseal antibody, tissue Transglutaminase antibody.(12)

Management in Primary care:

- A caring doctor-patient relationship is the first step in management.
- Explaining the diagnosis should be followed by reassurance as there is no single etiology and patients visit the physician with recurring symptoms.(28)
- Avoiding aggravating factors including certain drugs and diet.

The treatment plan is based on the nature and severity of the symptoms, the degree of functional impairment, and the presence of psychosocial factors. Because of its safety and low cost, a trial of fiber is reasonable; particularly in patients whose predominant symptom is constipation.(29)

At low dosages, tricyclic antidepressants (TCAs) and, potentially, selective serotonin reuptake inhibitors (SSRIs) have analgesic properties independent of their effect on mood. The anticholinergic properties of TCAs may slow intestinal transit time, making them effective in the treatment of diarrhea. Fiber supplements or laxatives for constipation or medicines decrease diarrhea, such as loperamide. (12) An antispasmodic is commonly prescribed, which helps to control colon muscle spasms and reduce abdominal pain. However, both antispasmodics and antidepressants can worsen constipation. Medications affect people differently, and no one medication or combination of medications will work for everyone with IBS.(12,30)

Probiotics are live microbial food supplements or components of bacteria that alter the enteric micro flora. The most frequently used genera are Lactobacilli and Bifidobacteria. The potential mechanisms of their action include competitive bacterial interactions, production of antimicrobial metabolites, mucosal conditioning, and immune modulation.(31)

Peppermint leaves contain oils that have mild anesthetic properties, relieve nausea, and relax smooth muscle spasticity caused by

histamine and cholinergic stimulation. The herb ginger has one component, gingerols, which functions as a serotonin 5-HT antagonist and enhances motility. Aloe Vera has been recommended for constipation-dominant IBS. Fennel has been recommended for IBS-related bloating.(32,33)

A variety of psychotherapies, including cognitive behavior therapy, hypnosis, and stress management/relaxation therapy, reduce abdominal pain and diarrhea.(34) Relaxation technique is the process, procedure, or activity that helps a person to relax, including autogenic training, biofeedback, deep breathing, meditation, progressive muscle relaxation, visualization, yoga and hypnosis.(35) Stress management is an important part of treatment for IBS. Frequent and regular meditation and relaxation, even if only for a few minutes a day, does four things that are helpful in a stress-reducing program: it trains the attention, increases control over thought processes, increases the ability to handle emotions and aids physical relaxation. Physical activity is a way of responding to stress which allows the discharge of the energy the body is anticipating. Physical activity can be taken in many ways, including activities such as walking, jogging or sport.(36)

Progressive muscle relaxation teaches patients to relax muscles through a two-step process, first deliberately apply tension to certain muscle groups, and then stop the tension and turn your attention to noticing how the muscles relax as the tension flows away. Cognitive therapy seeks to help the patient overcome difficulties by identifying and changing dysfunctional thinking, behavior, and emotional responses. Identified "problem cycle," and the efforts of the therapist and patient would be directed at working together to change it and also address the way the patient thinks and behaves in response to similar situations and by doing develop more flexible ways to think and respond. (37) The patient may then become more active, succeed and respond more

adaptively more often, and further reduce or cope with his negative feelings.

The mind and body often combine to increase the misery of IBS patients. Psychological interventions including cognitive behavioral therapy, hypnotherapy and relaxation techniques are worth considering. A great majority of IBS patients can be managed well by Family Physicians. (37,38) Awareness of 'red flags' for referral to a specialist gastroenterologist is a must. If handled properly, stress can help improve performance, but too much stress without appropriate strategy to control it can be harmful for the mind and the body.(39,40) Given the limited benefits of pharmacologic therapy and the psychosocial issues involved, effective treatment of IBS requires a comprehensive, multifaceted approach.(41,42)

References

1. Casiday, R. E, Hungin, A P S, Cornford, C. S, de Wit, N. J, Blell, M. T. Patients' explanatory models for irritable bowel syndrome: symptoms and treatment more important than explaining aetiology. *Fam Pract* 2009;26: 40-47.
2. W G Thompson, K W Heaton, G T Smyth, C Smyth. Irritable bowel syndrome in general practice: prevalence, characteristics, and referral *Gut* 2000;46:78-82 .
3. Jafri W, Yakoob J, Jafri N. Irritable Bowel Syndrome in Health Care Professionals in Pakistan *J Pak Med Assoc Sep* 2003;53(9):405-7.
4. Fatima Mahboob. Presentation of Irritable Bowel Syndrome in Medical Outpatient Department of a Tertiary Care Hospital. *Ann King Edward Med Coll Oct - Dec* 2002;8(4):278-9.
5. Tahir Siddique, Maratab Ali, Safdar Hussain Qadri. Irritable bowel syndrome in two different socioeconomic groups in Pakistan. *Ann King Edward Med Coll Jan - Mar* 2007;13(1):65-6.
6. Fass R, Longstreth GF, Pimentel M, Fullerton S, Russak SM, Chiou CF, et al. Evidence- and consensus-based practice guidelines for the diagnosis of irritable bowel syndrome. *Arch Intern Med* 2001; 161:2081-8.

7. Aaron LA, Burke MM, Buchwald D. Overlapping conditions among patients with chronic fatigue syndrome, fibromyalgia, and temporomandibular disorder. *Arch Intern Med* 2000;160:221.
8. Horwitz BJ, Fisher RS. The irritable bowel syndrome. *N Engl J Med* 2001;344:1846-50.
9. Casiday, R. E, Hungin, A., Cornford, C. S, de Wit, N. J, Blell, M. T . GPs' explanatory models for irritable bowel syndrome: a mismatch with patient models?. *Fam Pract* 2009;26: 34-39
10. Ford, A. C., Talley, N. J., Veldhuyzen van Zanten, S. J. O., Vakil, N. B., Simel, D. L., Moayyedi, P. Will the History and Physical Examination Help Establish That Irritable Bowel Syndrome Is Causing This Patient's Lower Gastrointestinal Tract Symptoms? *JAMA* 2008;300: 1793-1805.
11. Yale, S. H., Musana, A. K., Kieke, A., Hayes, J., Glurich, I., Chyou, P.-H. Applying Case Definition Criteria to Irritable Bowel Syndrome. *Clin Med Res*2008; 6: 9-16.
12. Spiller, R, Aziz, Q, Creed, F, Emmanuel, A, Houghton, L, Hungin, P, Jones, R, Kumar, D, Rubin, G, Trudgill, N, Whorwell, P. Guidelines on the irritable bowel syndrome: mechanisms and practical management. *Gut* 2007;56: 1770-1798.
13. Neal, K R, Barker, L, Spiller, R C . Prognosis in post-infective irritable bowel syndrome: a six year follow up study. *Gut* 2002;51: 410-413.
14. Rubin, G., Wit, N. D., Meineche-Schmidt, V. Seifert, B., Hall, N., Hungin, P. The diagnosis of IBS in primary care: consensus development using nominal group technique. *Fam Pract* 2006; 23: 687-692.
15. Robinson, A, Lee, V, Kennedy, A, Middleton, L, Rogers, A, Thompson, D G, Reeves, D . A randomised controlled trial of self-help interventions in patients with a primary care diagnosis of irritable bowel syndrome. *Gut* 2006;55: 643-648.
16. Lembo, A. J. . A 54-Year-Old Woman with Constipation-Predominant Irritable Bowel Syndrome. *JAMA*2006; 295: 925-933
17. Spiller, R. C. Irritable bowel syndrome. *Br Med Bull* 2005; 72: 15-29.
18. Longstreth, G. F, Burchette, R. J . Family practitioners' attitudes and knowledge about irritable bowel syndrome: Effect of a trial of physician education. *Fam Pract* 2003; 20: 670-674.
19. Halder, S. L., McBeth, J., Silman, A. J, Thompson, D. G, Macfarlane, G. J . Psychosocial risk factors for the onset of abdominal pain. Results from a large prospective population-based study. *Int J Epidemiol*2002; 31: 1219-1225.
20. Guthrie, E., Thompson, D. ABC of psychological medicine: Abdominal pain and functional gastrointestinal disorders. *BMJ* 2002;325: 701-703 .
21. Longstreth GF, Thompson WG, Chey WD, et al. Functional bowel disorders. *Gastroenterology*. 2006;130:1480-1491.
22. Drossman DA, Morris CB, Hu Y, et al. A prospective assessment of bowel habit in irritable bowel syndrome in women: Defining an alternator. *Gastroenterology*. 2005;128:580-589.
23. Drossman DA, moderator. AGA Clinical Symposium -- Rome III: New Criteria for the Functional GI Disorders. Program and abstracts of Digestive Disease Week; May 20-25, 2006; Los Angeles, California.
24. Tillisch K, Labus JS, Naliboff BD, et al. Characterization of the alternating bowel habit subtype in patients with irritable bowel syndrome. *Am J Gastroenterol*. 2005;100:896-904.
25. Mertz HR. Irritable bowel syndrome. *N Engl J Med* 2003;349: 2136-46.
26. Wasim Jafri, Javed Yakoob, Nadim Jafri, Muhammad Islam, Qazi Masroor Ali. Irritable bowel syndrome and health seeking behaviour in different communities of Pakistan. *J Pak Med Assoc Jun* 2007;57(6):285-7.
27. Kassab Harfoushi. Women with irritable bowel syndrome according to Rome II criteria in Jordan Pak *J Med Sci Jan - Mar* 2008;24(1):136-41.
28. Abdullah M. Irritable bowel syndrome: current review on pathophysiology and diagnostic aspects. *Acta Med Indones Oct* 2008;40(4):218-25.
29. Talley NJ, Spiller R. Irritable bowel syndrome: a little understood organic bowel disease? *Lancet* 2002;360:555-64.
30. Brandt LJ, Bjorkman D, Fennerty MB, Locke GR, Olden K, Peterson W, et al. Systematic review on the management of irritable bowel syndrome in North America. *Am J Gastroenterol* 2002;97(11 suppl):S7-26.
31. Whorwell PJ, Altringer I, Morel J. et al. Efficacy of an encapsulated probiotic *Bifidobacterium infantis* 35624 in women with irritable bowel syndrome. *Am J Gastroenterol* 2006;101:1581-90.
32. Madisch A, Holtmann G, Plein K et al. Treatment of irritable bowel syndrome with herbal preparation. *Aliment Pharmacol Ther* 2004;19:271-9.
33. Spanier JA, Howden CW, Jones MP . A systematic review of alternative therapies in the irritable bowel syndrome. *Arch Intern Med* 2003;163:265-74.
34. Clouse RE, Lustman PJ . Use of psychopharmacological agents for functional gastrointestinal disorders. *Gut* 2005;54:1332-41.
35. Kerse N, Elley CR, Robinson E, et al . Is physical activity counseling effective for older people? A cluster randomized, controlled trial in primary care. *J Am Geriatr Soc* 2005;53:1951-6.
36. Viera AJ, Hoag S , Shaughnessy J . Management of irritable bowel syndrome. *Am Fam Physician* 2002;66:1867-74.
37. Drossman DA, Toner BB, Whitehead WE, Diamant NE, Dalton CB, Duncan S, et al. Cognitive-behavioral therapy versus education and desipramine versus placebo for moderate to severe functional bowel disorders. *Gastroenterology* 2003;125:19-31.
38. Javed Iqbal Farooqi, Rukhsana Javed Farooqi. A New Era in the Management of Irritable Bowel Syndrome. *J Coll Physicians Surg Pak Sep* 2001;11(9):585-91.
39. Simren, M., Ringstrom, G., Bjornsson, E. S., Abrahamsson, H. Treatment With Hypnotherapy Reduces the Sensory and Motor Component of the Gastrocolonic Response in Irritable Bowel Syndrome. *Psychosom* 2004; Med. 66: 233-238. (*continued page 14*)

Global Competencies in Family Medicine

William E Cayley Jr (1)

Lesley Pocock (2)

Victor Inem (3)

(1) William E Cayley Jr MD MDiv
Associate Professor
University of Wisconsin Department of Family Medicine
UW Health Augusta Family Medicine Clinic
207 West Lincoln, Augusta, WI 54722 , USA
T: 715.286.2270; F: 715.286.5716
Email: bcayley@yahoo.com

(2) Lesley Pocock
Publisher and Managing Director
medi+WORLD International
11 Colston Avenue
Sherbrooke 3789
Australia
Phone: +613 9005 9847; Fax: +613 9012 5857;
Email: lesleypocock@mediworld.com.au

(3) Professor Victor Inem
Professor of Family Medicine
Delta State University
Nigeria
Email: inemv@yahoo.com

Mohsen Rezaeian (4)

Special Contributing author:

(4) Associate Professor Mohsen Rezaeian
Rafsanjan Medical School
Rafsanjan, Iran
Email: moeygmr2@yahoo.co.uk

National Contributing Authors

Australia - Lesley Pocock, Dr Mike Ellis, Medical Renaissance Group

Bosnia-Herzegovina - Dr Azijada Beganlic; Bosnia and Herzegovina, Family medicine doctor, PhD, the Leader of Educational family medicine center

China - Clinical Professor Cindy Lam, Hong Kong SAR, -

India - Associate Professor Sunil Abraham Department of Family Medicine and Consultant, Low Cost Effective Care Unit, Christian Medical College, Vellore

Indonesia - Dr Sugito Wonodirekso, President PDKI

Iran - Associate Professor Mohsen Rezaeian, Dean Rafsanjan Medical School, Iran

Iraq - Professor Thamer Al Hilfy, Baghdad Medical College, Baghdad; Professor Abbas Ali Mansour, Assistant Professor of Medicine, Department of Medicine, Basrah College of Medicine, Consultant Physician -Al-Faiha Hospital, Hattin post office .P.O Box: 142

(continued over page)

Lebanon - Dr Abdulrazak Abyad, Abyad Medical Center, Tripoli, Lebanon

Nepal - Dr Pratap Narayan Prasad (Department Of General Practice and Emergency Medicine), Institute of Medicine, Kathmandu; Dr. Bijendra Kumar Rai, Faculty of Dept of GP and ER Medicine, Dr Mark Zimmerman, Dr Bruce Hayes (NSI)

Pakistan - Professor Waris Qidwai Professor and Chair, Department of Family Medicine, Aga Khan University, Karachi

Turkey - Prof. Hakan Yaman, Chairman, Akdeniz University, Faculty of Medicine, Dept. of Family Medicine, Antalya, Turkey, Former Founding Member, Board of Turkish Family Physicians

United Kingdom - Dr Bader Mustafa, Professor Salman Rawaf PhD FRCP FFPHM, Director of Public Health/ Director of WHO Collaborating Centre, Wandsworth tPCT, London

USA - William E Cayley Jr MD MDiv, Associate Professor, University of Wisconsin Department of Family Medicine, UW Health Augusta Family Medicine Clinic, 207 West Lincoln, Augusta, WI 54722 USA

West Africa - Dr Victor Inem Professor of Family Medicine, Delta State University, Nigeria

Research Committee for Compilation of Competencies Questionnaire List

Prof Victor Inem (Nigeria, West Africa) Prof Cindy Lam, (Hong Kong/China), Dr Bader Mustafa (UK), Dr Mike Ellis, Lesley Pocock (Australia) Dr Tawfik Khoja (Director General Executive Board Council of Health Ministers for Cooperation Council States, Saudi Arabia) Dr Hakan Yaman (Turkey) Dr Fusun Yaris (Turkey), Professor Waris Qidwai, (Pakistan) Bill Cayley Jr MD, (US) Dr Mike Ellis, Professor Abbas Ali Mansour (Iraq), Dr Bruce Hayes, Dr Bijendra Rai, Dr Pratap Narayan Prasad (Nepal), Professor Salman Rawaf PhD FRCP FFPHM, Director of Public Health/ Director of WHO Collaborating Centre, Wandsworth tPCT, London (UK)

ABSTRACT

Introduction: This project was devised to provide a global snapshot of required national competencies in Family Medicine, and is the result of an international collaboration of the International Fellowship of Primary Care Research Networks (IFPCRN). The Research team, which devised the questionnaire and original list of competencies, was drawn from around 30 countries and 15 countries responded to the questionnaire and contributed national data. These countries however represented close to two thirds of our global population and included Low, Middle and High Income countries (based on World Bank Purchasing price Parity (PPP) 2005) as well as representing a good cross section of climatological, socio-economic and geographical situations.

Aims and Objectives: To compile a list of competencies required of global family doctors, via global consultation, and use them in the form of a questionnaire to survey national family medicine representatives to ascertain if family doctors are required to be competent in these disciplines. The Objective is to provide a 'global snapshot' of competencies and trends in family medicine

Materials and Methods: A representative list of family medicine competencies was compiled by an International Fellowship of Primary Care Research Networks (IFPCRN) group, from 30 countries over a 3-month period, commencing June 2009.

A list of 57 expanded items, and 44 core items was then compiled and formed the basis of a questionnaire, with provision for adding additional competencies that did not appear in the list of 57. This was broadcast by list server to the IFPCRN email group.

Results: 15 Family medicine/ primary care representatives completed the survey on behalf of their nation (or region in the case of West Africa). Results showed a trend toward a globally standard curriculum but still much variation in competencies taught.

Key words: global family medicine, competencies, medical education, primary care.

Introduction to the Topic

Family medicine is at a critical point.

It is well accepted globally that primary care is the optimum approach to healthcare for all. (1) Advances have been seen in most countries and more recently, socio-economics have played a large part in providing more pragmatic and affordable approaches to healthcare for all.

However as some nations are beginning to adopt accreditation, and postgraduate education, healthcare is becoming increasingly unaffordable everywhere. There is a global shortage of family doctors, even in wealthy countries, which are attracting large numbers of doctors from developing nations, and most families of the world go without adequate healthcare.

The medical education system is not producing enough family doctors. This is directly attributable to financial matters as universities necessarily charge high fees, thus restricting universal access to medical education and most countries restrict the number of GPs/FPs/family doctors in the educational system, to contain their own health care costs, especially where governments subsidise healthcare. It is also directly attributable to philosophical and ethical issues as everything is achievable if the will is there.

Secondary to the lack of access to quality affordable medical education and lack of access to healthcare because of population poverty, is the type of medical education offered and its ability to meet the needs of local, national and global patients (i.e. all the people of the world). Are we teaching proper practice that includes socio-economic considerations when 'best practice' is unachievable for the local conditions in a broad set of examples (within a community context and national context) and because of financial constraints on both doctors and patients?

Recent work has shown that mainstream medical curricula does not necessarily cover all national medical education needs. Those conditions that affect developing nations only, do not feature highly in mainstream medical education and the CME trials in Nepal in 2009, for example, required the development of new education to cover a substantial number of unnamed fevers and to provide better focus on all endemic conditions within the economic constraints and structures of the country (10).

Few would dispute that the global family doctor of today needs to know everything as proper family practice also addresses the psychological and social health of a community.

Increased travel, migration, tourism, migratory workforces and climate change also means any medical condition can present to any family doctor anywhere in the world. Additionally most doctors working in developing nations are doing everything purely because they are the only medical resource available to the population. Family doctors in developed nations like the United Kingdom and Australia require the GP/FP to know everything so that they can address as many health needs as possible at the primary care level and appropriately refer their patients to specialists as and if required.

Most importantly why are we not as a global community addressing parity and equity of healthcare to all by increased sharing and less national duplication of medical education resources? After all, humanity does not differ from one location to another.

This is harmonious with the following definition of a family doctor (Wonca European Region Definition 2002)(1):

“General practice / family medicine is an academic and scientific discipline, with its own educational content, research, evidence base and clinical activity, and a clinical specialty orientated to primary care.

The characteristics of the discipline of general practice/ family medicine are that it:

- a) is normally the point of first medical contact within the health care system, providing open and unlimited access to its users, dealing with all health problems regardless of the age, sex, or any other characteristic of the person concerned.
- b) makes efficient use of health care resources through coordinating care, working with other professionals in the primary care setting, and by managing the interface with other specialties taking an advocacy role for the patient when needed.
- c) develops a person-centred approach, orientated to the individual, his/her family, and their community.
- d) has a unique consultation process, which establishes a relationship over time, through effective communication between doctor and patient
- e) is responsible for the provision of longitudinal continuity of care as determined by the needs of the patient.
- f) has a specific decision making process determined by the prevalence and incidence of illness in the community.
- g) manages simultaneously both acute and chronic health problems of individual patients.
- h) manages illness which presents in an undifferentiated way at an early stage in its development, which may require urgent intervention.
- i) promotes health and well being both by appropriate and effective intervention.
- j) has a specific responsibility for the health of the community.
- k) deals with health problems in their physical, psychological, social, cultural and existential dimensions.” (2,3,4)

A new pragmatic approach is required where we look at equity, structures, curricula and financing of the same.

Introduction to the project

Global Competencies in Family Medicine, is the result of an international collaboration of the International Fellowship of Primary Care Research Networks (IFPCRN). The Research and Author team was drawn from around 30 countries and 15 countries contributed national data. These countries however represented close to two thirds of our global population and included Low, Middle and High Income countries (based on World Bank PPP 2005).

Research is an efficient means of defining and approaching problems and this research project was conducted to obtain a 'snapshot' of family medicine in a wide range of countries and circumstances. The validity of the tool (Questionnaire) was readily verified by the fact that few additional competencies were added to the original list.

Many of these additions were in essence 'applied medicine', that is, new approaches to old disciplines and often with financial and practical constraints in mind.

Materials and Methods

A representative list of family medicine competencies was compiled by an IFPCRN group, representing 12 countries (see Research Committee).

A core list of 44 items, from an expanded list of 55 items (with sub-headings) was compiled, with provision for adding additional items not appearing in the list of 55.

This list was distributed electronically on the IFPCRN list server to national family medicine representatives in the form of a tick box questionnaire with room for additional competencies and narrative comments and responses gathered over a 6 month period from May 2009.

Returned data was collated onto one spreadsheet for comparative purposes. For DATA SHEET visit: www.mejfm.com/July2010/Datasheet.htm

Results

15 national representatives completed the survey on behalf of their nation (or region in the case of West Africa). The populations of these countries however made up well over half the global population (see Figure 1, opposite page) and came close to covering two thirds of the global population.

Figure 1 depicts responding countries in green, by population density. The map portrays countries by comparative population density to show more clearly the global population coverage of the survey.

Participating countries also covered a good range of geographical/ climatological, and socio-economic situations (coming from low middle and high economic countries) as well as high and low population density countries (as indicated in Figure 1 -where low population density Australia, for example, hardly appears on the map).

Participating countries/regions were Australia, Bosnia-Herzegovina, China, Ghana, India, Indonesia, Iran, Iraq, Lebanon, Nepal, Pakistan, Turkey, United Kingdom, USA, and West Africa.

Results were collated by participating nation and by Family Medicine Competency.

Only 1 country (Australia) covered all 44 listed competencies and the lowest coverage of competencies was in Indonesia, with 17 competencies covered. See data sheet.

Each competency ticked (1 - 44) was then added and results are displayed in Diagrams 1 and 2 (pages 24-25)

A further 16 competencies were added to the original list by the participants, as additional competencies required in their country. While this additional list was not returned to the original questionnaire fillers, several respondents added the same items. These extra competencies were: general surgery, office procedures,

radiotherapy, dentistry, urbanization, economic factors, renal disease, sports medicine, sexual health (including sexual dysfunction), Nutrition (malnutrition and over-nutrition/obesity), epidemiology, microbiology, pathology, forensic medicine, spirituality and medicine, care of the disabled.

General Surgery was included as a required competency by the three poorest responding countries - Ghana, West Africa and Nepal, where family doctors are required to 'do everything'.

Office procedures (minor/office surgery) was done by Australian and United Kingdom GPs only, where there is a push for GPs to do more surgery in the office, as a health system cost saving exercise.

Distributed questionnaires also asked the respondent to provide a national overview of family medicine in their country, in narrative format. These follow in alphabetical order:

Australia

Family medicine/Primary Care is the basis (70%) of the healthcare system in Australia with all patients attending the GP, apart from Accident and Emergency hospital presentations. The GP refers the patients to specialists as/if required.

The Australian GP therefore has to 'know everything' but much of that knowledge is not put into practice - rather it is required to know who and when to refer. You could argue Australian family doctors (GPs) are 'over-qualified'.

There is increased government pressure for GPs to take on as much as possible, e.g. office procedures, and due to a shortage of rural GPs, there are increasing numbers of practice nurses to take on some of the less critical work from GPs.

Most importantly primary care is run (vially) as 'small businesses' with solo or group practices, increasingly in a multi practice environment, e.g. in conjunction with a pharmacy, radiology services, or physiotherapist

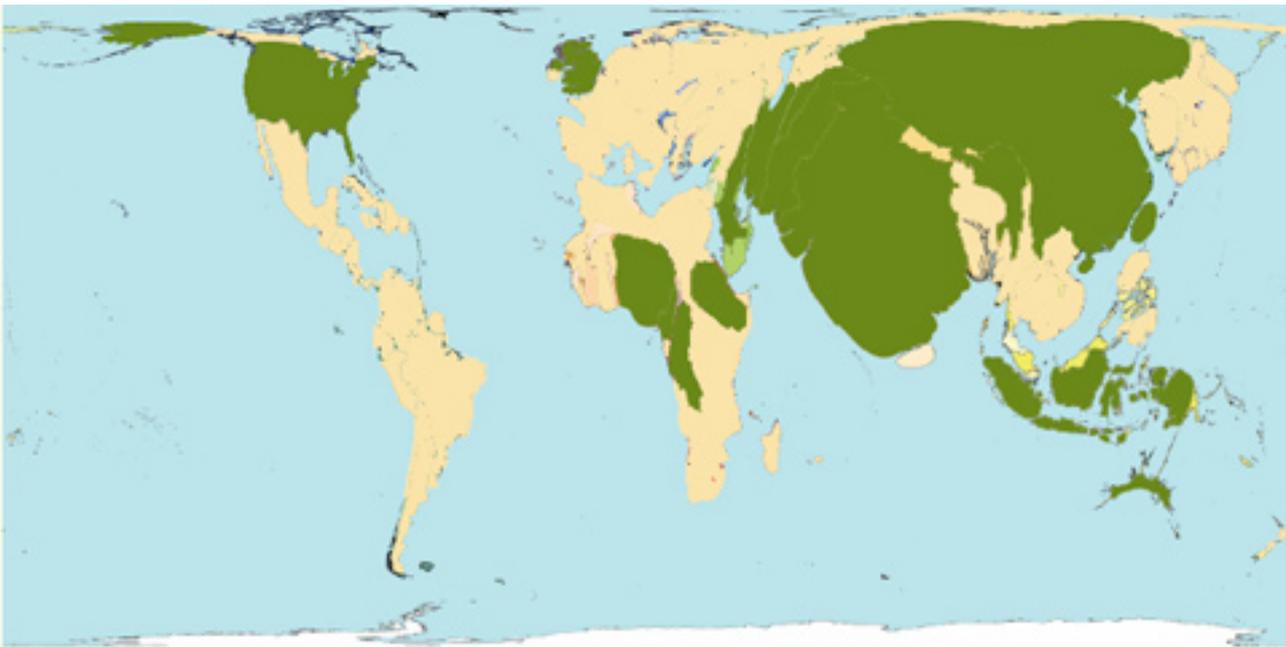


Figure 1: Participating countries (in green) by Global Population (Reproduced with permission: © Copyright SASI Group (University of Sheffield) and Mark Newman (University of Michigan). <http://www.worldmapper.org/copyright.html>)

The biggest concern in Australia is shortages of doctors in rural areas (areas where GPs have to take on a wider role) and the lack of GPs (or anyone) doing obstetrics. This is due to patient expectations (a perfect baby), possible litigation and 24-hour demands on the already overworked GP. Midwives are not used in Australia.

The GP is required to maintain Vocational Registration (VR) and must obtain triennial QA&CPD points to maintain that status.

Australia has both private and public health cover with the private system offering 'choice' and the public system providing 'free care' for the poorer members of society. Training is done in the public system and the public system possibly provides better healthcare than the private system accordingly.

Bosnia-Herzegovina

In Bosnia-Herzegovina there are specific demographic conditions and specific morbidity and mortality (exacerbated by many displaced persons because of the recent war, PTSD, CVD and malignancy (breast cancer, lung cancer and colon cancer)).

China/Hong Kong

Formal structured FM training started in 1982 in Hong Kong but was only available to a few people until 1999. FM training posts have increased ranging from 20 to 90 entries a year since 1999. All the training posts are tied to service without dedicated funding, so trainees have a very heavy workload and trainers or training units are providing training without any remuneration.

The requirements and standards are determined and assured by the Hong Kong College of Family Physicians but the training posts are provided by the hospitals and clinics through their employment of the trainees to provide service.

Current training consists of four years of basic training that qualifies the doctor to become a fellow of the Hong Kong College of Family Physicians; and two further years of higher training that qualifies the doctor to become a specialist in Family Medicine.

Ghana

Family Medicine is the name of the new global concept of postgraduate training in General Medical Practice. It is a special medical discipline and the practice of it is Family Practice.

Physicians trained in this discipline become Family Physicians.

It is a discipline, which has integrated the essentials of several medical specialties into a new whole for the purpose of caring for the medical needs of several people at a given time. Its approach to patient care is holistic, seeing the individual in his own totality and in the context of his family and community.

The Family Physician is a frontline Doctor, the first contact of health care, irrespective of age, sex, disease, state of health or illness. He/she sees the individual, makes a quick provisional diagnosis, offers initial treatment, investigates and maintains comprehensive and continuous management. He/she also renders preventive, supportive and rehabilitative care, which help a patient to maintain or return to as high a level of physical and mental health and well being as he can attain. At the appropriate time he/she refers to the consultant specialist at the tertiary hospital.

A Family Physician is, therefore, trained to be highly knowledgeable in General Medical Practice with the appropriate attitude, skills and competence to enable him/her to

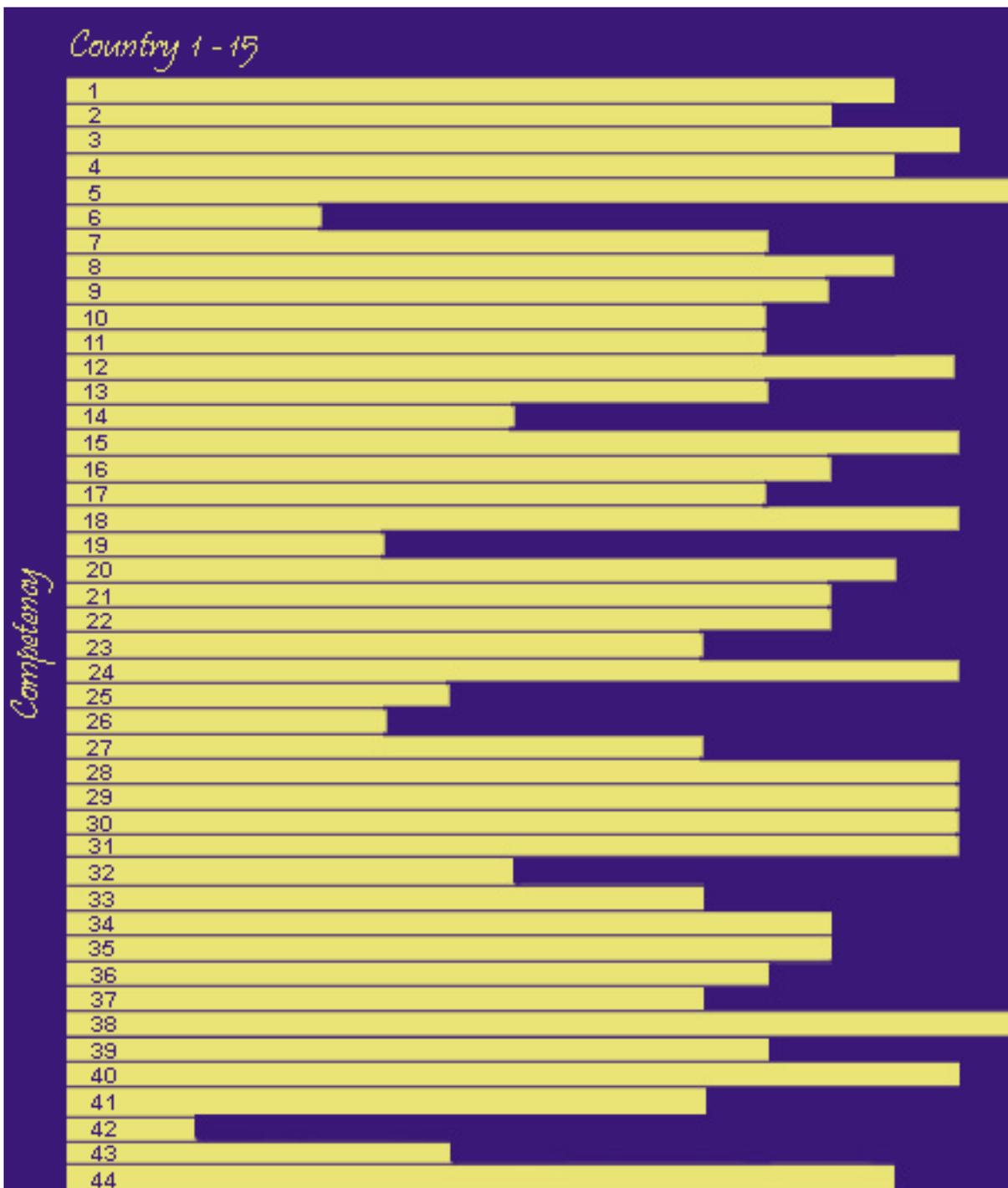


Diagram 1: Coverage of competencies (alphabetically) in surveyed countries. (See Legend pages 24-25 for Competency names).

LEGEND

- | | | |
|-----------------------------------|--|---|
| 1. Accident & Emergency | 11. Continuing Professional Development (CME, Lifelong learning) | 21. Geriatric health |
| 2. Aged care | 12. Dermatology | 22. Haematology |
| 3. Child Health | 13. Diagnostic medical imaging | 23. Industrial & Occupational health |
| 4. Cancer | 14. Domiciliary care | 24. Infectious diseases |
| 5. Cardiovascular health | 15. ENT | 25. Integrative medicine |
| 6. Complementary Therapy | 16. Endocrinology | 26. Manual Therapy and Physiotherapy |
| 7. Clinical pharmacology | 17. Ethics and legal issues | 27. Men's Health |
| 8. Communication skills | 18. Gastrointestinal health | 28. Musculoskeletal health. (inc. orthopaedics) |
| 9. Consultation skills | 19. Genetics | 29. Neurology |
| 10. Counselling and psychotherapy | 20. Genito-urinary health | 30. Obstetrics & Gynaecology |
- (continued p 25)*

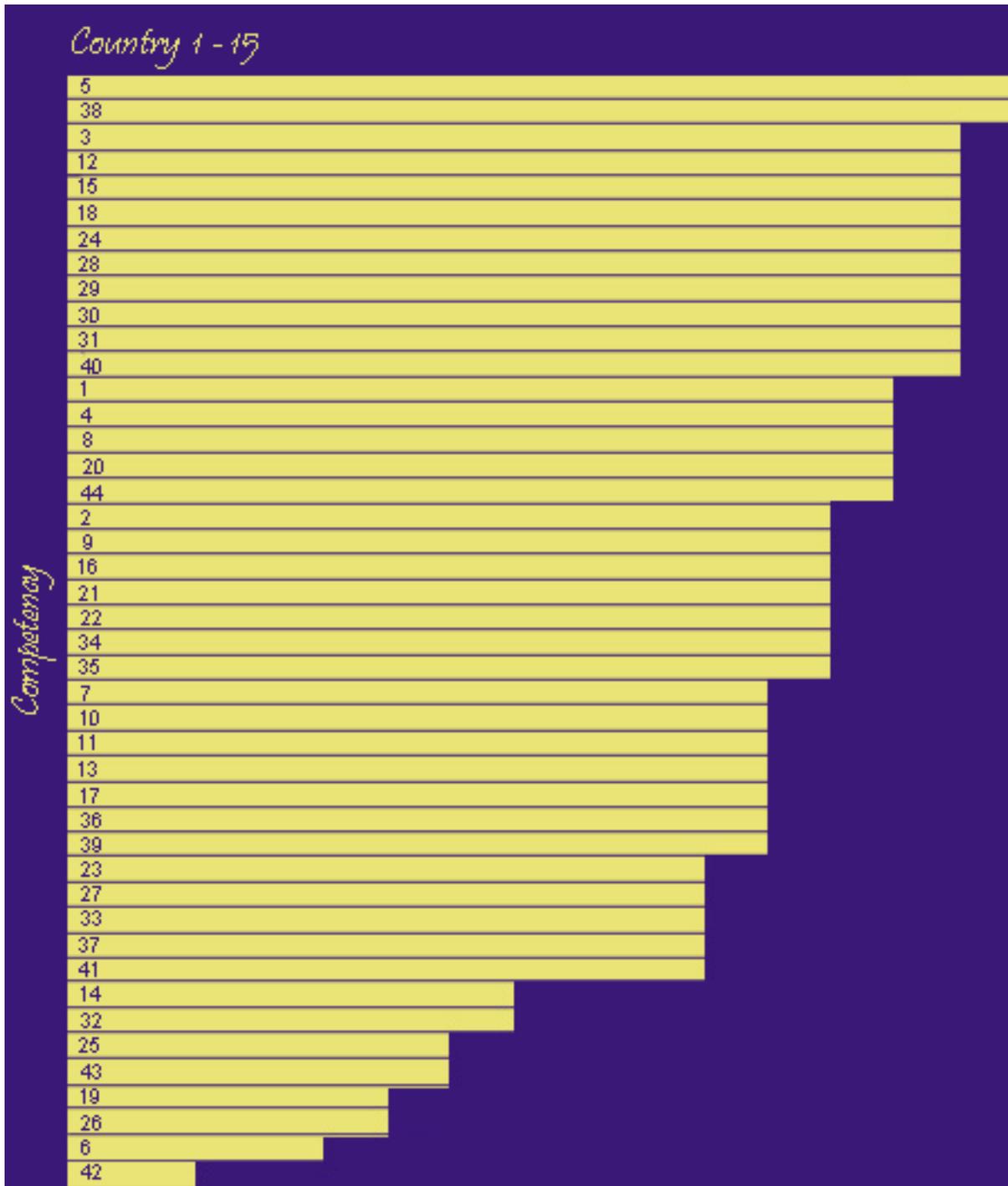


Diagram 2: The same data shown from most covered competency to least covered. See Legend pages 24-25 to match Competency with its equivalent number.

LEGEND (continued)

- | | |
|--|---------------------------|
| 31. Ophthalmology | 40. Respiratory health |
| 32. Oro-facial medicine | 41. Social issues |
| 33. Pain management | 42. Terrorism and Warfare |
| 34. Palliative care | 43. Travel medicine |
| 35. Population health/preventive health/national disasters | 44. Women's Health |
| 36. Practice management, | |
| 37. Procedures | |
| 38. Psychiatry (Mental health) | |
| 39. Research and EBM | |

render quality care to his patient and keep a good doctor-patient relationship. He/she sees most of the diseases of most of the people most of the time.

The relevant contribution of the Family Physician in National Health Systems has been recognized by WHO, World Organisation of Family Doctors (WONCA), University Medical Schools, Colleges of General Practitioners and Health Centres worldwide and information regarding this has been disseminated to Ministries of Health.

This discipline is fast becoming popular internationally and we have to ensure that Ghana is not left behind. The success of the Ghana Health Service and the National Health Insurance Scheme will depend largely on the training of sufficient numbers of Family Physicians to man our district hospitals and polyclinics.

India

The challenges that the specialty faces in India are:

1. The lack of excellent training in family medicine

The medical council of India has not yet begun a University based family medicine program yet. The National Board of Examinations under the Ministry of Health and Family Welfare has accredited some hospitals to have the family medicine training. However, the lack of understanding among the specialists about the discipline and the shortage of trained family physicians has resulted in poor quality of training in most of these hospitals. There are many private institutions, which offer training for different levels of competency- from 6 months to 2 years of distance education, to the three year full time residential program of the National Board. The National Board conducts examinations for all the specialties and is limited by the fact that almost all of its members are specialists.

2. Family medicine/ general practice is seen as less lucrative and glamorous compared to the other specialties. Both the medical profession and the public seem to

want the care from the specialists, which makes family medicine a less desired choice for the medical students. GP clinics manned by a single physician who only prescribes medicines will not have a reasonable income. The long working hours without break will also result in an image of a physician who is always struggling. Group practices can provide some solutions for these.

3. The lack of academic faculty in family medicine
India does not have a national college for any of its specialties, including family medicine. There is no national academic body that works on the curriculum and professional development. There are only two medical schools in the country with a department of family medicine and faculty who are dedicated to the specialty.

4. The lack of good research in primary care. This is a great need that has to be met to address the health needs of the country and to improve the status of the specialty in the academic world. Excellent primary care research will serve as a lever that will elevate the specialty so that it receives the acknowledgement and acceptance that it deserves.

5. The National Rural Health Mission (NRHM) of the Indian government which has invested a lot in improving the quality of health in rural India, has identified family medicine as the key to address the disparities in health in the country. It is currently involved in developing a curriculum for a skill based 2 year family medicine postgraduate diploma course. The course will be via distance education for a year and residential for another year.

6. The distance education department of Christian Medical College, Vellore has a 2 year postgraduate diploma in family medicine. The trainees are given modules that cover the various topics. Three contact programs are held in different parts of the country. During these contact programs, the trainees get to interact with the faculty of Christian Medical College, Vellore, through a live telemedicine

link. This program attracts about 150 candidates each year. The government has begun to send their primary health centre physicians for this program from last year. (11)

Indonesia

Priorities/needs are malnutrition; new emerging diseases such as HIV/ AIDS, Dengue Haemorrhagic fever and Avian flu; Drug abuse; Herbal medicine awareness; Alternative medicine awareness; Disaster management (education for peoples; how to cope).

Iran

Iran has a well-developed primary health care network, which offers care right down to the village level for all people in the country, as well as a well-functioning referral system.

Iranian doctors train for seven years and approximately 4000 doctors graduate every year. All graduates are required to do two years' community service, largely in rural health centres.

The health care system is specialist orientated. As a result, Iranian general practitioners are somewhat limited in their range of skills, but their basic training is sound and they have good experience from rural public health care.

It should be noted that in Iran there is no Family Medicine specialty yet, although the government considers developing such a specialty. However, general practitioners (GPs) can work as family physicians, especially within rural areas.

The country has 85,000 physicians (mainly general practitioners) with about 39,000 specialists.

The entire health system is managed by a combined ministry of health and medical education organisations. As a result of this, the university in each province is responsible for looking after public health care in the province, both in terms of providing human resource training and in terms of managing the public health system.

The structure in the provinces is around a primary health care network, which is different depending on rural and urban settings.

In rural areas primary care is provided by a health house, for approximately every 1500 people. The health house is staffed by a particular category of health worker called a behvarz, - a multi potential community health worker trained at a district level. The health houses refer to rural health centres. There are approximately 16,000 health houses around the country covering more than 90% of the rural population. Each rural health centre has one or more general practitioners working there, several health technicians (mid level workers responsible for a range of different activities including occupational health and environmental health, communicable diseases, etc), midwives, and administrative personnel.

In 1994 the provincial health organizations and the universities of medical sciences were integrated, and universities of medical sciences and health services were established. Since then, the chancellors of these universities have been responsible for education and research, and for the health care of their entire province. As a result of the integration, research has become more public health oriented and medical education more community oriented. The integration has also led to an improvement in the health situation of the country; particularly in the villages, remote areas and less developed provinces.

The general practitioners in the health centres are also responsible for visiting the referring health houses, to supervise the behvarz working in these, and to see any patients that they are having difficulty with. Many rural health centres also have delivery facilities attached to them. The corresponding structures in urban areas are health posts which are similar to health houses but cater for much larger numbers i.e. about 12,000 people per health post. General practitioners are mainly used in the emergency section and in the out-patients department. (15,16,17,18)

Iraq

Family medicine as a separate specialty started in 1995 in the form of an Iraqi board and then Arabic board, which was established in 2007-2008 in Iraq with the establishment of a board of family medicine in the medical colleges. There are no FM departments in undergraduate medical colleges, only postgraduate colleges. Family medicine topics are given under the umbrella of PHC teaching as part of community medicine curriculum.

There are now more than sixty graduated family physicians in Iraq, but still they are not doing their jobs properly. The family doctors appeared after 1999 (the 1st group of graduates) - and most of them are now working in PHCCs and only a few have administrative responsibilities and some of them are in the MOHE of hospitals, or are logistic workers in the directorate of health in Iraqi governates, which is far away from their specialty to some extent.

Primary care is done primarily by general practitioners (GPs). The GPs in Iraq mostly do not have qualifications higher than primary medical school. All health care workforces in Iraq are citizens of Iraq. A lot of PHCC doctors are truly committed to their work and among the 2053 or more PHCCs in Iraq from different levels or classes, more than 50% of those centers do not have doctors to run the clinic and rely on health staff to do that.

Some of the GPs working in primary health care are those who are not motivated, and are interested but not given the chance to upgrade their knowledge. Still primary health care centres are doing their jobs of maternal care, vaccination, and other primary care duties. All PHCCs are doing that job but innovation is absent and concern with records is more likely a routine.

The presumed referral system to hospital from primary care centres began in November 2008, but still (I see each Sunday in the hospital) more than 200 patients without referral from primary care and most

of them are simple cases that can be managed by the primary care physician. This will cause exhaustion of effort of consultant physicians in the major hospitals in Iraq. The doctors in primary health care send patients to the major hospital outpatients clinics without examining them.

Evidence-based medicine concept is not practiced in our health institutions including teaching hospitals. Still antibiotics are prescribed for all patients with flu like illnesses, cough syrup for all those with coughs and most patients force their doctor to give them injections. Family doctors still do not practice electronic registration of patients. There is a great overlap between the work of primary care centre and major hospitals daily overlap between private work and the governmental health system in the area. Most of the doctors have private clinics at afternoon and morning governmental health Institutes.

Despite it being 6 years after the 2003 war and with 10 times increases in salary of health providers in Iraq, there is still no great change in provision of health services. There is discrepancy between health planning and the application in practice. There are now 10 family medicine centers all over Iraq and the plan is to have 125, that is 1 family medicine center per district in Iraq within the year 2014 and this target is far from being achieved .

Challenges and Future Trends in Iraq
Family medicine in Iraq needs re-evaluation and a lot of work needs to be done toward more improvement of the health system, otherwise this malpractice will continue for a long period.

Nigeria

Nigeria with a population of 140 million is one of the most important countries in Africa, and it has one of the most sordid political and economic histories of the continent. The country is rich in petroleum reserves and has only recently become a democracy again, having been ruled by military dictators for 34 years.

The story of Nigeria is the same for many developing economies. Nigeria has enormous potential for the production of national wealth. It is endowed with a large population and has excellent human resources, a reasonably sufficient higher educational system, excellence in professional training and discipline, a high number of sophisticated and well-trained professionals, and at long last some political stability. Yet, as one can see Macroeconomic and social indicators reveal it to be a poor, developing country, with a long distance to go to improve the daily lives of its citizens. The Year 2007 Human Development Report ranked Nigeria at 158 out of 177 countries and among the 20 poorest in countries in the world.

Nigeria is in a state of health transition meaning a shift in the demographic and epidemiological makeup of the country, and associated social conditions, attitudes, from an environment dominated by high fertility, high mortality, infectious disease and malnutrition to a low mortality, low fertility environment with a disease profile increasingly weighted towards non-communicable conditions of adult and elderly.

It is estimated that about 65% of Nigerians earn below USD\$1 a day, the majority of whom are women. Infections and parasitic diseases are the predominant causes of mortality and morbidity. In addition the spread of HIV (Human Immunodeficiency Virus) infection poses a serious challenge to sustainable developments although some population groups within Nigeria particularly among the elite, have entered or passed the health transition

A lot of Nigeria's failures are its own, but some are due to world economic conditions as well.

The health sector problem in Nigeria can be traced in larger part to the continued hierarchical organization of health care. The Health Care System in Nigeria was designed as a pyramid. The Primary Health

Care level forms the base while the apex is the tertiary health care providing sophisticated specialist care and technology. The secondary level, in between, comprises the various district and state general hospitals, private general hospitals and faith-based general hospitals. The secondary care provided is comprehensive, curative and preventive with appropriate investigative and treatment facilities.

This is where the training and practice of Family Physicians at post graduate level takes place sometimes without the support of the university academic system, (in short, there is a disconnect between academic input and service delivery and training at this level of care).

Health care facilities reflect the country's administrative hierarchy, which operates from the top to bottom. In theory at the PHC level, village health posts, local dispensaries, health centers, are intended to provide the preventive and primary care needed by the people living in rural and peri urban areas. This is where the bulk of Nigeria's population lives, (a burgeoning 65%); with health personnel who bring health care as near to the people at their places of abode as possible with appropriate but minimal technology. It is where demand is greatest, and it is where preventive and primary care would have the greatest positive impact on national health. But at these lower levels of the health care hierarchy, bureaucratic authority is weakest and spending is lowest. Neither private providers nor private voluntary organizations have filled the resulting gap in the provision of health care. Although private voluntary organization, such as faith based hospitals and clinics, often are effective providers in local areas, they account for only 5 to 10 percent of all expenditures in the country.

The poor quality of primary health care in many areas is often the result of shortages of qualified staff, lack of essential supplies, unreliable health data, and insufficient numbers of facilities. In some cases though,

administrative weaknesses become apparent because facilities are underused and overstaffed. Some rural primary health centers for example, were found to employ twenty health workers who treated only three or four patients a day. Lack of standards for facilities and procedures complicates matters.

Given the inadequacy of many of these Primary Health care centers, they often are bypassed by patients who decide to seek better care at full-fledged hospital (Bocar 1989). As a result, overqualified staff and expensive facilities are used in ways their planners did not contemplate.

Nepal

A Master course for GPs has been running for 25 years under a structural based curriculum.

There are 3 GP training programmes in Nepal under 3 different universities. These are Institute of Medicine (IOM) in Kathmandu, BPKIHS in Dharan and NAMS in Kathmandu. The courses are similar with some curricular variations. Each has its own exam but the seniors from each institute tend to conduct exams so there is some consistency in this.

BPKIHS, Dharan is running a 3 years Medical Doctorate in General Practice and Emergency course. It is well-structured course where this course covered the following subjects:

(1st year): Emergency and Family Medicine, Gynecology and Obstetrics, Surgery and Orthopaedics, Radiology.
(2nd year): Anaesthesia; Medicine; Paediatric; Community and Public Health; Psychiatric; Dermatology; Zonal Hospital; Laboratory.
(3rd year): ENT, Eye, Forensic Medicine, Dental, District Hospital.

The course equally gives importance to public health in diseases prevention, health promotion health awareness etc.

In Nepal, undergraduate and postgraduate medical education has developed rapidly. Against this

backdrop of mushrooming medical institutions, there is much room for improved CME: (1) that the number of effective materials would increase, and (2) that the medical profession would more fully embrace the need for evidence-based content delivered by evidence-based modalities. The time is ripe for Nepal's medical profession to turn its attention and resources towards this essential area.

Pakistan

The front line position that we have in the health care system as family doctors will determine basic and minimum competencies and skills requirements. It is only when services at secondary and tertiary levels are lacking that we take up those responsibilities, which we are normally not required to perform.

Turkey

The following comments relate to the postgraduate curriculum in Family Practice at Akdeniz University. This curriculum overlaps to 90% with the core curriculum of the Turkish Board of Family Physicians. The following areas are 'elective': Dermatology, ENT, Radiology and imaging, endocrinology, gastroenterology, genito-urinary health; haematology, infectious diseases.

The following areas are covered in CPD: men's health; integrative medicine; musculo-skeletal health; neurology, ophthalmology; pain management; palliative care,

Additionally:

- Residents are requested to perform an assignment with at least 25 elderly patients in community. Courses on Elderly friendly PHC provided.
- Residents are requested to perform an assignment (at least 2500 words on an ethical issue in family practice)
- Family Planning & Birth Control (Certificate of the Turkish Ministry of Health provided)
- Sports Medicine (Courses provided)
- Adolescent Health (Courses provided)
- Substance abuse (Courses provided)
- Courses on homeopathy offered
- Courses on systemic family

medicine offered

- Genito-urinary health offered during 8 months Gyn & Ob rotation.

USA

Recognizing fundamental flaws in the fragmented US health care systems and the potential of an integrative, generalist approach, the leadership of 7 national family medicine organizations initiated the Future of Family Medicine (FFM) project in 2002. The goal of the project was to develop a strategy to transform and renew the discipline of family medicine to meet the needs of patients in a changing health care environment.

A national research study was conducted by independent research firms.

The study concluded that the discipline needs to oversee the training of family physicians who are committed to excellence, steeped in the core values of the discipline, competent to provide family medicine's basket of services within the New Model, and capable of adapting to varying patient needs and changing care technologies. Family medicine education must continue to include training in maternity care, the care of hospitalized patients, community and population health, and culturally effective and proficient care. A comprehensive lifelong learning program for each family physician will support continuous personal, professional, and clinical practice assessment and improvement.

Ultimately, system wide changes will be needed to ensure high-quality health care for all Americans.

The leadership of US family medicine organizations is committed to a transformative process. In partnership with others, this process has the potential to integrate health care to improve the health of all Americans.

Main features of the new (2010) US Health Reform Bill that will affect family medicine/primary care in the US include:

- 1) There will be a slight increase in the reimbursement by Medicare and Medicaid to physicians who predominantly provide primary care
- 2) There is going to be an effort to review services that may be "mis-valued" - i.e., perhaps re-valuing the reimbursement for some services, that primary care doctors may have been underpaid for
- 3) There is provision for reimbursement for pilot projects for establishing "patient centred medical homes."

Some highlights of the Bill, which will have a direct effect on family medicine in the USA are:

- Bars insurance companies from denying coverage to children with pre-existing condition
- Prohibits insurance companies from denying coverage to an individual with a pre-existing condition. Also limits premium variation to 3:1 based on certain conditions such as age, geography, family size, and tobacco use
- Extends the age in which a child can remain on their parents' plan to age 26
- All new insurance plans must cover preventative services. Preventative services are; evidence based services with an "A" or "B" rating from the US Preventative Services Task Force; immunizations recommended by the Advisory Committee on Immunization Practices of the CDC; and preventative care recommended by HRSA guidelines for women and children
- Provides tax credits for low income individuals to purchase insurance through state exchanges. (Reconciliation bill defines people eligible to receive tax credits)
- A 5 year pilot program would be implemented by the Secretary for patients with one or more of 10 conditions during an episode of care. Allows for expansion of the pilot if it is

found to improve quality and reduce costs.

“- Establishes a non-profit corporation known as the Patient Centered Outcomes Research Institute ran by a governing board composed of the director of AHRQ and NIH along appointed stakeholders.

The Institute would identify research priorities, establish research project agenda, and study how health problems can be studied, monitored, treated and managed. The Institute will be funded through a Patient Centered Outcomes Research Institute Trust Fund with funds available without appropriation.

Limitations of the research

While data collected was representative of the global situation, not all countries were represented, due to not responding to the questionnaire.

There is differing terminology for clinical topics/disciplines, and differing requirements of family doctors within these clinical areas, across nations. Where possible, responses were streamlined (allocated an equivalent name) at time of collation.

In the UK and Australia a general practitioner is a highly qualified generalist doctor specialising in general practice/family medicine and is synonymous with a family physician. In other countries a GP is a lesser qualification who in some cases has done no postgraduate education.

For the sake of this article we used the term ‘family medicine’ as an academic discipline. to be inclusive of all doctors looking after patients at the primary care level. Some of these doctors also act as specialists, particularly in developing and poor nations.

Other limitations were terminology regarding naming of clinical topics/disciplines. These were streamlined after data capture into equivalently named clinical topics, however some variations may still exist.

The list of competencies in the questionnaire were the subject of original research however provision was made for adding additional national competencies taught. These additional topics were not re-broadcast to the original questionnaire fillers, so are appended as an additional ‘list’ only.

We do not necessarily have full data on those items not on the original questionnaire if participants forgot to add them to the list of ‘others’ (examples include dentistry and general surgery).

Due to a difference in terminology and groupings of clinical disciplines we can rely on the ‘positive data’, but the negative data (no boxes ticked) may just as much reflect missing data, as a negative response.

Discussion

The ‘traditional areas of medicine’ seem well covered everywhere. In some few countries however, (e.g. Bosnia Herzegovina and some of the Emirates) - these same areas are seen as exclusively ‘internal medicine’ - paediatrics, gastroenterology etc). This happens where GPs are seen as ‘sub standard doctors’ and usually have no postgraduate training, i.e. where general practice is not a postgraduate qualification as in the UK and Australia.

Generally GP is synonymous with Family Physician however.

Child health is seen as specialist (paediatrics) in some few countries, not ‘family medicine’.

Aged Care and Women’s Health are universal aspects of family medicine according to the completed questionnaires - and ‘men’s health’ is newly emerging as part of Family Medicine.

Ethics and communication skills now seem to be mainstream as does integrative medicine.

You could arguably group a lot of new classifications under ‘cost-effective medicine’ that are currently under

Integrative or holistic medicine

Other so-called ‘new clinical areas’ are really ‘applied medicine’.

The research highlighted some novel pragmatic approaches to both national and regional medical education:

(The Low Cost Effective Care Unit (LCECU) - Vellore India)

The LCECU was envisaged as an answer to the rising cost of health care, which made it unaffordable to the urban poor of Vellore town in India. The Christian Medical College Vellore began the unit 25 years ago to provide low-cost and subsidized care to the poor of the town and to demonstrate that effective health care could be provided without expensive technology. This is in accordance with the “both-and” philosophy of the institution, to provide care for the rich and the poor and to make primary, secondary and appropriate hi-tech tertiary care available to patients. The expenses for operating the LCECU is subsidized by the income generated from the main hospital, which is about 2 km away. The cost of the care is kept low by an emphasis on good clinical acumen, appropriate investigations and use of essential drugs with generic drugs whenever possible. Most of the clinical work in LCECU is managed by family physicians that can manage more than 80% of the problems that the patients present with. The generalist approach to clinical problems by these multi-competent physicians plays a key role in the functioning of the unit by providing comprehensive care, reducing referrals to specialists and judicious use of investigations.

Nepal CME

The Nepal CME program was a collaborative effort under the guidance of the Nick Simons Institute (NSI) that saw the development of new medical education to meet the real and specific needs of Nepali doctors and people. For example, a syndrome-symptom approach (in chart format) was developed to provide a means of treating unnamed fevers that did not appear in formal education.

Comprehensive education was also developed for malaria, leprosy and TB, for example, within the local conditions, practices and epidemiology.

Iran - the Behvarz

While not strictly primary care Iran's system of rural health workers (the Behvarz) provide preventive and clinical healthcare in conjunction with general practitioners.

Applied Sciences of Oncology

While developed for oncologists (who in many developing nations are family doctors with no formal training in Oncology) this multimedia distance education courseware, sponsored by the International Atomic Energy Agency (IAEA) and the Regional Cooperative Agreement of the United Nations (RCA) has now been validated as global medical curriculum and was produced to overcome a world shortage of oncologists with a focus on the needs of developing nations. It was developed to be highest quality, but affordable, appropriate and readily used by developing nations doctors. Pilot country trials in 2005 validated the approach and its utility. (12)

Conclusions and Recommendations

Generally core competencies in undergraduate or postgraduate primary care training are covered in most countries but it is the application of those skills and the number of FP/GP training years that differ.

Even in wealthy countries there are shortages of doctors and the majority of the people of the world go without optimum healthcare. Therefore governments and educational institutions are not addressing the world population's needs. These needs will become increasingly more expensive to meet and therefore quality healthcare will become even less available.

Global warming and climate change will add to the burden, as diseases are already moving into new latitudes.

Continuing war and terrorism, refugees and displaced persons will also contribute to the health problems of humanity.

Additionally "global medical education curriculum" is not meeting all the needs of national healthcare. There is a dearth of quality education on conditions only affecting poor and developing nations.

Socio-economics (poverty) of both nations and people often mean (accepted) 'best practice' is totally unachievable due to costs to both doctors and patients. While some medical education from various sources does cover this duality, medical curriculum must start addressing these needs, as unaffordability of healthcare will increasingly afflict developed as well as developing nations.

Strategic/remedial CME is one way for developing nations to bridge the gap (14). While CME is an obvious way to pick up the latest knowledge, to use it to overcome curriculum and undergraduate deficiencies is a good idea and one that can be implemented retrospectively. Many of these issues of missing curriculum could be lumped under ethics, and 'health poverty' affects the entire global population, e.g. in terms of disease outbreaks, unimmunised populations etc.

You could arguably group many issues under 'cost-effective medicine', that are currently under Integrative or Holistic medicine.

A new pragmatic approach is required where we look at these issues globally, particularly the affordability of medical education and healthcare delivery and at educational structures, curricula and financing of the same to allow all countries to deliver equity of quality healthcare to their people.

References

1. (Wonca Europe region - The New definitions 2002) www.globalfamilydoctor.com/publications

2. Phillips RL Jr, Bazemore AW. Primary care and why it matters for U.S. health system reform. *Health Aff (Millwood)*. 2010 May;29(5):806-10. PubMed PMID: 20439865.

3. Frenk J. Reinventing primary health care: the need for systems integration. *Lancet*. 2009 Jul 11;374(9684):170-3. Epub 2009 May Review. PubMed PMID: 19439350.

4. Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. *Milbank Q*. 2005;83(3):457-502. Review. PubMed PMID: 16202000.

5. . Marie-Dominique Beaulieu MD CCFP MSc FCFP Valérie Dory MD Dominique Pestiaux MD Denis Pouchain MD, Marc Rioux MSc Guy Rocher PhD Bernard Gay MD Laurier Boucher MSW. What does it mean to be a family physician? Exploratory study with family medicine residents from 3 countries Vol 55: august o août 2009 Canadian Family Physician o Le Médecin de famille canadien

6. Lee T. Dresang, MD, Laurie Brebrick, FNP, Danielle Murray, MD, Ann Shallue, DO, and Lisa Sullivan-Vedder, MD, Family Medicine - World Perspective. *Family Medicine in Cuba: Community-Oriented Primary Care and Complementary and Alternative Medicine*. 298 JABFP July-August 2005 Vol. 18 No.

7. Joseph Scherger, MD, MPH STFM, Editor, Letters to the Editor Section <http://www.jabfp.org>. 234. April 2008

8. Dr. Waris Qidwai, Tawfik A M Khoja, Dr. Victor Inem, Dr. Salman Rawaf, William E Cayley, Family Medicine. Strategies to improve status of family physicians: A perspective from an international collaboration.

9. From Alma-Ata to Almaty: a new start for primary health care www.thelancet.com Published online October 14, 2008 DOI:10.1016/S0140-6736(08)61524-X

10. The Future of Family Medicine: A Collaborative Project of the Family Medicine Community; Future of Family Medicine Project Leadership Committee American Academy of family Physicians. ANNALS OF FAMILY MEDICINE _ WWW.ANNFAMMED.ORG _ VOL. 2, SUPPLEMENT 1 _ MARCH/APRIL 2004
11. Sunil Abraham, Practicing and Teaching Family Medicine in India. STFM, Vol. 39, No. 9 671
12. Applied Science of Oncology - Distance Education Courseware <http://www.iaea.org/NewsCenter/News/2010/aso.html>
13. Nepal CME Dissemination Program: 17 September 2009. 'Taking Continuing Medical Education the Next Step Forward'
14. World CME. medi+WORLD International www.WorldCME.com
15. F Azizi, Iranian J Publ Health, Vol. 38, Suppl. 1, 2009, pp.19-26. A supplementary Issue on: Iran's Achievements in Health, Three Decades after the Islamic Revolution Medical Education in the Islamic Republic of Iran: Three Decades of Success.
16. Khojasteh A, Momtazmanesh N2, Entezari A, Einollahi B. Iranian J Publ Health, Vol. 38, Suppl. 1, 2009, pp.29-31A supplementary Issue on: Iran's Achievements in Health, Three Decades after the Islamic Revolution Integration of Medical Education and Healthcare Service,
- 17 SA Marandi Iranian J Publ Health, Vol. 38, Suppl. 1, 2009, pp.4-12 A supplementary Issue on: Iran's Achievements in Health, Three Decades after the Islamic Revolution The Integration of Medical Education and Health Care Services in the I.R. of Iran and its Health Impacts,
- 18 Couper ID, Medicine in Iran: A brief overview. BA, MBBCh, MFamMed. SA Fam Pract 2004;46(5)
19. Samuel W.M. LeBaron, MD, PhD; Stephen H. Schultz, MD. July-August 2005 Family Medicine International Family Medicine. Family Medicine in Iran: The Birth of a New Specialty.

Atropine Penalization versus Occlusion Therapy in Amblyopia

Mohammad Abdo Ja'ara, MD

Paediatric Ophthalmologist,
King Hussein Medical Center
Jordan

ABSTRACT

Objective: To evaluate the efficacy of atropine penalization in the treatment of amblyopia in comparison with conventional patching.

Methods: A prospective randomized study that was conducted at King Hussein Medical Center of the Royal Medical Services during the period between January 2007 and January 2009. One hundred patients were enrolled in the study. Patients were divided into two groups of 50 subjects each. The first group was treated by atropine penalization and the second by conventional patching. Inclusion criteria included age between 6 and 12 years, visual acuity between 6/12 and 6/60 and anisometropia as the only explanation for poor vision. Snellen's visual was tested 1 month, 3 months, 6 months and one year after treatment.

Results: Mean age of patients was 8.9 years with a male to female ratio of 0.9:1. For the group treated by atropine penalization, visual acuity improved by 1.1 Snellen's lines after 1 month, 1.8 lines after 3 months and 2.3 lines after 6 months and 1 year. Patching showed faster recovery after 1 month with improvement of vision by 1.9 Snellen's lines after

1 month. The results were almost the same after 6 months and 1 year with improvement of 2.2 and 2.3 lines respectively.

Conclusion: Atropine penalization is as effective as patching in the treatment of anisometropic amblyopia though the speed of recovery is slower.

Keywords: penalization, patching, anisometropia and amblyopia.

Introduction

Amblyopia is a decrease of visual acuity with no apparent cause detected on ocular examination (1). It is the most common cause of monocular visual impairment in children and young adults (2). Amblyopia is generally classified in order of frequency into strabismic, anisometropic and visual deprivation. Anisometropic amblyopia accounts for 20% of causes of amblyopia (3).

Anisometropic amblyopia can occur with any refractive error though is more common in hypermetropia than myopia (4). Treatment modalities include occlusion of the sound eye in order to stimulate vision in the amblyopic eye. Methods of occlusion include conventional patching and atropine penalization (5). In this study we aimed to evaluate the efficacy of atropine penalization in the treatment of amblyopia in comparison with conventional patching.

Methods

A prospective randomized study that was conducted at King Hussein Medical Center of the Royal Medical Services during the period between January 2007 and January 2009. One hundred patients were enrolled in the study. Patients were divided into two groups of 50 subjects each. The first group was treated by atropine penalization and the second by conventional patching. Inclusion criteria included age between 6 and 12 years, visual acuity between 6/12 and 6/60 and anisometropia as the only explanation for poor vision. Snellen's visual was tested 1 month, 3 months, 6 months and one year after treatment.

Mean age of patients was 8.9 years with a male to female ratio of 0.9:1. For the group treated by atropine penalization, visual acuity improved by 1.1 Snellen's lines after 1 month, 1.8 lines after 3 months and 2.3 lines after 6 months and 1 year. Patching showed faster recovery after 1 month with improvement of vision by 1.9 Snellen's lines after 1 month. The results were almost the same after 6 months and 1 year with improvement of 2.2 and 2.3 lines respectively (Table 1).

Conventional patching showed faster recovery with 1.9 lines improvement in visual acuity after 1 month compared to 1.1 lines in the atropine group. The results were almost the same after 6 months of treatment (2.2 lines and 2.3 lines). Extending the period of treatment to 1 year did not show further improvement.

In conclusion, atropine penalization is as effective as patching in the treatment of anisometropic amblyopia though the speed of recovery is slower.

Period	Atropine group	Patching group
1 month	1.1	1.9
3 months	1.8	2.1
6 months	2.3	2.2
1 year	2.3	2.3

Table 1: Improvement of visual acuity after 1 month, 3 months, 6 months and 1 year in both groups

Discussion

The first step in treating amblyopia is proper diagnosis that excludes any pathological cause for poor vision (6). Amblyopia commonly affects young children and early treatment is important in order to prevent irreversible decrease in vision. Detection and monitoring visual acuity may be difficult in young children; therefore we did not select patients younger than 6 years in our study. In addition, we did not include patients older than 12 years as they respond poorly to treatment (7).

Standard treatment of amblyopia is stimulating the amblyopic eye to focus. Refractive error should be prescribed for strabismic and anisometropic amblyopia, removal of media opacity in visual deprivation amblyopia (8-11). As for refractive errors, optimum correction should be given in order to provide a clear image to fovea and stimulate visual pathway (12). During treatment, patients were encouraged to do near activity for two hours daily (13).

The results of our studies showed that both treatment options are effective in reversing amblyopia.

References

1. American Academy of Ophthalmology. San Francisco, Calif: American Academy of Ophthalmology; 2002. Preferred Practice Pattern: Amblyopia.
2. Flynn JT, Woodruff G, Thompson JR, et al. The therapy of amblyopia: an analysis comparing the results of amblyopia therapy utilizing two pooled data sets. *Trans Am Ophthalmol Soc.* 1999; 97: 373-90.
3. Gregson R. Why are we so bad at treating amblyopia. *Eye.* 2002; 16: 461-2.
4. Atilla H, Oral D, Coskun S, et al. Poor correlation between "fix-follow-maintain" monocular/binocular fixation pattern evaluation and presence of functional amblyopia. *Binocul Vis Strabismus Q.* 2001; 16: 85-90.
5. Foley-Nolan A, McCann A, O'Keefe M. Atropine penalisation versus occlusion as the primary treatment for amblyopia. *Br J Ophthalmol.* 1997; 81: 54-7.
6. Gräf M, Becker R, Kaufmann H. Lea symbols: visual acuity assessment and detection of amblyopia. *Graefes Arch Clin Exp Ophthalmol.* 2000; 238: 53-8.

7. Chen PL, Chen JT, Tai MC, et al. Anisometropic amblyopia treated with spectacle correction alone: possible factors predicting success and time to start patching. *Am J Ophthalmol.* 2007; 143: 54-60.
8. Cleary M. Efficacy of occlusion for strabismic amblyopia: can an optimal duration be identified. *Br J Ophthalmol.* 2000; 84: 572-7.
9. Cotter SA, Edwards AR, Wallace DK, et al. Treatment of anisometropic amblyopia in children with refractive correction. *Ophthalmology.* 2006; 113: 895-903.
10. Cotter SA, Edwards AR, Arnold RW, et al. Treatment of strabismic amblyopia with refractive correction. *Am J Ophthalmol.* 2007; 143: 1060-3.
11. Kaye SB, Chen SI, Price G, et al. Combined optical and atropine penalization for the treatment of strabismic and anisometropic amblyopia. *J AAPOS.* 2002; 6: 289-93.
12. Klimek DL, Cruz OA, Scott WE, et al. Isoametropic amblyopia due to high hyperopia in children. *J AAPOS.* 2004; 8:310-13.
13. Kutschke PJ, Scott WE, Keech RV. Anisometropic amblyopia. *Ophthalmology.* 1991; 98:258-63.

Necrotizing fasciitis induced by self-injection of kerosene

Dr. Hani M.Kafaween, MD, JBS*

Dr. Haitham Rbehat, MD, JBS*

Majida Sweis, RN

Khitam Nimer Hawil, RN

*Jordanian Board of Surgery

Correspondence:

Dr. Hani M.Kafaween, MD, JBS*

Department of General Surgery, Royal medical services,
Amman, Jordan

ABSTRACT

Introduction: Self-injection of kerosene is a rare occurrence. Only a few specific cases of kerosene injection have been reported so far in the literature (1-3), however other cases of chemically induced necrotizing fasciitis possibly due to kerosene derivatives have been reported (4,5). This type of injury is very serious since it has potentially devastating consequences.

Key Words: warfarin, skin necrosis, anticoagulants.

Case report

A 17 year old single female lady, was admitted to the emergency room (ER) following an argument with her family. The patient had injected an unknown amount of kerosene on both cubical fossae of upper limbs about five days prior to presentation in the ER.

She was admitted to another hospital for 4 days where she was treated for erosive material contact dermatitis to both upper limbs.

Then she was admitted to our surgical ward, where the proper diagnosis was done by high suspicion of the appearance of the lesions, and the smell of kerosene. The patient realized that her condition was getting worse. Then she told us the real story, which was, self injection of kerosene in both cubital fosse as a suicidal attempt.

She experienced severe pain which became intolerable with inability to sleep. Both upper limbs were swollen with loss of function. The pain was so severe, despite the administration of a full dose of narcotic analgesic.

There was nothing significant in her medical history, but a lot of social problems. Clinical examination in the ER showed an ill-looking, but alert patient, well-oriented in time and place. She was in agonizing pain, with a temperature of 38.5°C, blood pressure 100/70 mmHg, pulse 98/minute and respiratory rate 21/minute. All other systems were essentially normal. Urine output was also satisfactory.

Physical examination of the right upper limb revealed indurated, severely tender weeping red areas of skin with hotness, redness and swelling from mid arm to mid forearm mainly cubital fosse. (Figure 1).

The left upper limb revealed indurated, severely tender weeping red areas of skin with hotness, redness, and swelling from mid arm to mid forearm with areas of skin necrosis through which a deep necrotic tissue came out. (Figure 2,)

Both upper limbs were generally warm, but capillary refilling of the fingers was delayed. The peripheral pulsations felt and were weak. Bedside Doppler stethoscope auscultation of peripheral arteries on admission was not helpful. Plain X-ray films of both elbows didn't show any evidence of bony injury but gas in the subcutaneous and fascial planes. Intracompartmental pressure was not measured.

Blood count, urine analysis, electrolytes and urea, blood sugar and liver function tests during admission were within normal limits. Blood culture was negative. We made a provisional diagnosis of self-inflicted acute necrotizing fasciitis with compromised venous return secondary to injection of kerosene. Immediate management included admission to the ward, commencement of broad-spectrum antibiotics, and elevation of both upper limbs. Within a few hours of admission the patient was taken to the operating room (OR) where she had multiple fasciotomy incisions extending to the deep fascial layers. (Figure 3, 4).



Figure 1: Right elbow

The kerosene smell was very characteristic after cutting into the subcutaneous layer, and the operating field was obviously ischemic. Swabs were taken for culture and sensitivity, which were negative. There was obvious improvement in the capillary refill of the fingers after the fasciotomies. Dressing was then applied and pulse oximetry showed oxygen saturation of 97%. Repeated sessions of wound debridement with removal of devitalized skin and subcutaneous tissues were carried out with repeated wound swabs, all of which proved negative.

She was seen by the psychiatrist in view of the emotional circumstances that led to the injury and was diagnosed as suffering from personality disorder. Histopathology specimens sent at the time of the initial surgical debridement showed a massive, variable acute inflammation,

with aggregation of neutrophils, and focal fat necrosis with hemorrhage. Further wound debridement continued until the necrotizing process gradually ceased and healthy granulation tissue appeared. (Figure 5)

(Figures 2-4 are on the next double spread, Figure 5 on the page following)

Skin grafts were applied later with subsequent complete wound healing.

Discussion

Kerosene is available for domestic use in developing countries mainly for heating and cooking purposes. It is primarily a mixture of hydrocarbons. If these hydrocarbons come in contact with the skin surface, they can cause dryness, scaling and sometimes severe contact dermatitis (6). When injected under the skin kerosene causes an intense

local inflammatory reaction with necrosis of the skin, fatty tissue and possibly underlying muscle (it may involve all soft tissue layers) (2, 7). Burn accidents following explosion or misuse of kerosene, and to a lesser extent poisoning secondary to ingestion, constitute significant emergency admissions mainly at winter time (8, 9). Most of the cases reported in the literature were self-inflicted with the intention of committing suicide so they will not give a proper history.

In the reported cases, the authors advocated aggressive, timely and repeated surgical debridement until reaching viable tissue, followed by possible skin graft (4). Aggressive and repeated continuous surgical treatment in our case was rewarding in that we avoided amputation.



Figure 2: Left elbow



Figure 3



Figure 4

In reviewing the clinical picture of this case, time was an important factor. Delay in management would have allowed the noxious agent to cause much irreversible necrosis and possible suppuration (4,9) Since the injected material penetrates slowly, immediate and adequate surgical debridement with possible fasciotomy is the best initial treatment, followed by repeated and relentless debridement with dressings. Systemic effects may accompany the local disturbance, which is usually characterized by fever, leucocytosis and lymphangitis. For this reason, antibiotics should be given to protect against staphylococcus, the most likely offending microorganism in these cases. Treatment may be changed as required when culture results become available. The psychiatrist diagnosed the patient as having personality disorder, which we tended to agree with. The most common injury in patients with personality disorder is wrist cutting.

Mentally disturbed patients have been known to inject milk or faeces into themselves, inducing severe cellulitis. This type of patient needs continuous psychiatric follow up and a solution for their social frustration. Self-injections of kerosene are rare, unusual and can produce severe tissue damage, especially if prompt surgical treatment is delayed. Psychotherapy is also an integral part of the management (9, 10, and 11).

References

1. Qaryoute SM: Skin ulceration by kerosene injection. *Ann Plast Surg.* 1984;12(4):361-363.
2. Nixon SA: Kerosene induced abscesses. *Arch Intern Med.* 1985;145(9):1743.
3. Khammash MR, Hussein AD, Musmar M. Management of kerosene injections in the upper limb. *Saudi Med J.* 1997; 18(2):188-190.
4. Terzi C, Bacakoglu A, Unek T, Ozkan MH. Chemical necrotizing fasciitis due to household insecticide injection: is immediate surgical debridement necessary? *Hum Exp Toxicol.* 2002;21(12):687-690.
5. Green DO. Intravenous Energine NA case report. *Clin Toxicol.* 1977;10(3):283-286.
6. Cornish HH, Doull J, Casarett LJ. *Toxicology. The basic science of poisons.* (1st Ed.) New York: Macmillan; 1985.
7. Rao GS, Kannan K, Goel SK, Pandya KP, Shanker R. Subcutaneous kerosene toxicity in albino rats. *Environ Res.* 1984;35(2):516-530.
8. Eade NR, Taussig LM, Marks MI. Hydrocarbon pneumonitis. *Pediatrics.* 1974;54:351-356.
9. Enchsen H, Lynge P: Chemical Inflammation and subcutaneous necrosis after injection of benzene. *Ugeskr Laeg.* 1979;141:1337.



Figure 5

(References continued)

10. Derksen J. Personality disorders, clinical and social perspectives. London:Wiley and Sons;1995.
11. Hawton K, Katalan J. Attempted suicide: a practical guide to its nature and management. Oxford: Oxford University Press;1987.

WORLD FAMILY MEDICINE / MIDDLE EAST JOURNAL OF FAMILY MEDICINE VOLUME 8 ISSUE 6

© **medi+WORLD International 2010**