A Study on Headache Disorder in Kingdom Of Saudi Arabia
Review (October 2013)

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***Abstract* - Headache is the most common central nervous system disorders & one of commonest health problem (1).**
It has psychological, social & economic effect on the patients & their surrounding populations. Although many epidemiological studies about headache disorders are performed yearly; they are only partially documented. Those studies are performed mainly in the developed countries & only few numbers of studies was performed in the developing countries because of the limited resources & funding and the present of difficult to be reached cites or villages.

Objectives

The aim of our study is to define the problem of headache worldwide & to compare the world wide studies & experiences with studies published in Arabian Gulf countries & Kingdom of Saudi Arabia (KSA); to gain better understanding of the burden of headache & situation of headache care in our country; if it is satisfying the patient and if the health resources are well utilized to decrease their suffering. Worldwide experience should be used to put helpful solutions & to make the management of headache disorders in our country more effective & efficient.

Methods

Review of most relevant worldwide studies related to international headache epidemiology including Arabian Gulf countries & burden of headache worldwide. We searched studies published on PubMed & Google scholar for the most relevant & updated studies.

An electronic survey that was performed will be discussed to, those surveys were spread through social websites to get some ideas about general populations & physicians opinions on recent status of headache care provided to headache patients & the idea of initiating a specialized headache clinic in Kingdom of Saudi Arabia.

Results

In KSA; prevalence of headache was measured through small number of studies; 1-year prevalence of all headache was 63% & it is accounted for 13% of all neurological outpatients. More than one-third of school students were absent from school due to headache. Mean headache-attributed lost work-days per person/year was 24.0 days for migraine, 6.6 days for Tension type headache (TTH) & 53.4 days for medication overuse headache .

The results of our 3 questionnaires show that; almost half of our samples have monthly attacks of headache & around 10-15% have daily headache attacks. More than one third of the responders mentioned that headache prevent them from performing their daily activity , it causes social isolation in more than 20 % of them , in almost equal percentage it is affect their relations & it is affect the school or work attendance in 8.33-9.3% of them.

Almost all of our responders agree that there is a need for more organization in management of headache cases & more education for headache patients in KSA.

Conclusion

Epidemiological studies worldwide show that headache has a high prevalence & burden; most of the developed country initiate headache organizations, programs that is aiming for physician educations & specialized headache clinic. Studies in KSA show that headache is affecting people life & most of the patients do not know where to go to manage their headaches. More organized headache care is needed & a Saudi headache society should be built to perform more studies & provide optimal care for headache patients.

I. Introduction

Epidemiology of Headache Worldwide

Epidemiological data about headache disorders are not completely reported, although many studies were performed in the developed countries; mainly in Europe and America. In the other hand; developing countries give more attention to communicable disorders & only few headache related studies are performed especially where there is limited resources or in the countries with small villages or rural towns that are difficult to be reached. Most of health care providers know that headache disorders are highly prevalent in all the countries & affecting people of all age groups, races, income and geographical areas; even if overall prevalence & incidence are not accurately documented for the different types & subtypes (1).The commonest age group affected by headache is between 20 – 50 years (2). Globally, 46% of the headache

patients has an active pattern, 11% of them has migraine, 42% has tension-type headache and 3% for chronic daily headache (3) . Only after dental caries, TTH and migraine labeled as the second and the third prevalent disorders worldwide ; migraine is the seventh leading cause for disability in the world (4) Most of the studies are focused on migraine rather than TTH (5). National Ambulatory Medical Care Survey showed that headache is the fifth medical cause for seeking physician advices overall in the U.S. and accounted for 1.2% of hospital visits (6).

Migraine

Migraine has a variable prevalence worldwide; it's reached up to 11 % in the developed countries (7), with a three-time higher rate in women because of the hormones effect. USA studies show that prevalence of migraine was 18.2% among females and 6.5% among males (8). Migraine is less common in children and elderly (9). Onset of migraine usually start in the 20s & 30s and relatively infrequently after the age of 40 years (2). Around 3,000 migraine attacks occur every day for each million of the general population (9). In European and American studies the frequency of migraine attacks is varied from 1/year to 1/week in 25% of patients with an average of 21 episodes per patient per year (2).

Tension-Type Headache

Episodic tension-type headache is the most common headache disorder, occurs in around 70 % of some populations (10) Chronic tension-type headache affects 1 – 3 % of adults (5). Overall, one-year prevalence of both episodic & chronic TTH is more than 60% in most of the countries. Onset is often in the 20s, prevalence peaks in the 4th decade & then declines. A large part of the population have mild and infrequent TTH (once monthly or less), with 20-30% experiencing headache episodes more often. TTH is also more in women, with a ratio of 1.5:1(2).

Medication Overused Headache

Prevalence of medication-overuse headache is more than all other secondary headaches (11) , Affecting more than 1 % of populations & women are affected more than men too. (12)

Is Headache Prevalence Increasing??

- Prevalence studies in same population performed with an interval showed different results:
- No increase in the prevalence was seen in one study (13)
- There is increase in prevalence:
  - In Finland: Headache among 7 year old children (14)
  - In Denmark: TTH from 1989-2001 (15)
  - In Taiwan: Migraine over 3 years among adolescents (16)
  - In Swedish : Headache schoolchildren over 40 years (17)
- There is decreased in prevalence:
  - Decreased incidence of Cluster headache in US (18)

II. Results

Headache study in Arabian Gulf countries:

In 2010; an epidemiological studies was performed in Arab countries & published in the headache journal. Countries was systematically reviewed through Medline identification of four papers reporting headache prevalence in the Arab nations of Qatar, Saudi Arabia (2 papers) and Oman. The prevalence of headache was 8 - 12% in KSA, 72.5% in Qatar and 83.6% in Oman. Headache was commoner in females and younger population. The prevalence of TTH was 3.1–9.5% in Saudi Arabia and 11.2%. In Qatar. The migraine prevalence was 2.6–5% in Saudi Arabia, 7.9% in Qatar & 10.1% in Oman. From the previous data; it is clear that there is disparity in the reported prevalence from KSA when compared with its two neighbors, Qatar and Oman, so we need a larger study using similar methodology in all the Gulf countries (Saudi Arabia, Qatar, Oman, Bahrain, United Arab Emirates and Kuwait) (19).

In United Arab of Emirates; prevalence of headache among schoolchildren is 36.9% with highest rate among 13-year-olds and prevalence of migraine alone is about 3.8% (20). In Qatar; one study showed that female students have higher prevalence of headache (86.5%) than males (81%).

Among those students; recurrent headache accounted for 85% and migraine accounted for 11.9%. Oldest children had more frequent episodes of headache; the highest rate was in the age group of 11-15 years old (49%). The most common triggers were fatigue (35.8%) & sleep deprivation (17.6%).

The children reported frequent leave from school because of the headache attacks (80%) and that headache is affecting their performance (21). Other study in Qatar showed that prevalence of headache and migraine was 67.9%, 7.8% in men & 78.2%, 8.0% in women respectively. Highest prevalence was seen in patients aged 25-34 years (27.3%) , women & in subjects with less than a high school education had (49.1%). The most common warning symptoms prior to headache were abnormal vision (53.0%) and weakness (30.4%). The most common precipitating factors are Stress (71.8%) and weather (49.5%) , around 33.7% of patients prefer staying in dark & quite place and 74.5% prefer to rest (22). In Oman; study of headache in medical students at Sultan Qaboos University showed that; the lifetime and last-year prevalence of headache was 98.3% and 96.8%, respectively.

Among students in the study 57.6% has positive family history of headache. The prevalence of migraine and tension-type headache was found to be the equal (12.2%), Migraine occur in 6.6% of the men and 15.5% of women & TTH in 13.9% of the men and 11.1% of the women. Only 23.3% of students sought medical assistance during headache episodes, and 80.3% took medication: 24.6% took prescribed medication, 72.9% took nonprescription medication, and only 2.5% took traditional remedies. Acetaminophen (83.1%) followed by mefenamic acid (24.6%) were the most commonly used drugs (23). Other prospective epidemiological study of headache in a rural community in Oman mentioned

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that; the crude lifetime and last-year prevalence of headache were 83.6% and 78.8%, respectively, with a female preponderance. The last-year prevalence of migraine and tension headache was 10.1% and 11.2%, respectively. There was no significant gender difference in migraine prevalence (4.5% in male and 5.6% in female), but tension-type headache was 2.6 times more common in females (3.1% in male and 8.1% in female). Last-year prevalence of frequent headaches was 5.4%. Forty eight percent of respondents sought medical assistance for their headaches and 79% were using medication, 40% of them used self-medication (24).

Primary chronic daily headache in Omani patients was studied by evaluating 171 patients visiting the Neurology Clinic at Sultan Qaboos University Hospital. Forty-five percent was diagnosed as suffering from primary chronic daily headache (female to male ratio, 1.7:1). Sixty-two percent suffered from transformed migraine and 34% from chronic tension-type headache. The average age across sexes was 32.3 ± 12.3 years. A dull heavy feeling in the head was reported by 58% of patients and was associated in less than one third with associated features characteristic of migraine. All headache types shared the same trigger factors. All patients were taking medication, predominantly analgesics, at the time of their first visit (25). In Kuwait; tension headache was the most frequent diagnosis (61.7%) among patients presenting with headache in PHC, followed by migraine (11.7%) (26).

Headache Related Studies in Kingdom Of Saudia Arabia

In the Kingdom of Saudi Arabia few headache related studies were performed; the aim of most of them was to measure the prevalence of headache in KSA & few recent studies related to burden of headache & quality of headache care were performed. One pilot study was performed in in Al-Khobar in February 2010; although the aim of the study was not measurement of headache prevalence but it showed that headache syndromes were the most common neurological disorders in adult in Al-Khobar (eastern province). First Saudi study that measure headache prevalence in KSA was performed in May 1990 ; in this study the pattern of headache syndromes in 222 subjects (142 Saudi nationals, 80 non-Saudis) seen at AI-Khobar (eastern province) Saudi Arabia was presented (27) . It showed that headaches were accounted for 13% of all neurological outpatients , they affected mainly young adults, with a peak frequency in the third decade for Saudis and the fourth for non-Saudis , they were rare in those under 10 and above 50 years old. It mentioned also that Saudi females outnumbered males especially in the second and fifth decades, the main types were tension headache (66%) that affected mainly individuals between 21 and 40 years of age (69%) and other common types was migraine (22%) that showed a definite female predilection only in Saudis in the fourth decade (female to male ratio of 4:1) & a positive family history for headache was present in 10% of the migraine cases.

The major precipitating factor for headaches was stress. Other triggers included hunger and prolonged exposure to excessive heat or sunlight (26).

Other study's article was published online in the same time of the previous one & was performed in May 1990 in Qassim (Central province). It was aiming to measure prevalence of Primary Headache Syndrome in Adults population in this region through door-to-door survey & subjects older than 15 years of age was used for completion of a structured questionnaire to determine headache types based on defined criteria. The result showed that from 5891 inhabitants, 473 suffered from headaches. Headache sufferers were predominantly women. The age-specific rate increased progressively, peaking in the sixth decade. Tension diagnosed in 185 subjects predominated (3.1%), while the prevalence of migraine was 2.6%. (27).

In 1997 in the central region a community-based door-to-door survey was performed in order to better understanding of headache & identification of headache cases based on IHS criteria. The study found that headache prevalence was 8% (95% CI = 7.3–8.7%) with a preponderance of TTH (39%).

Females were more often affected than males (ratio 2:1). Migraine subjects were more often in the professional occupational group compared with tension-type headache ($p < 0.05$). The study gave the fallowing conclusion: Headache prevalence in the community was low... Occupational association needs verification in further studies (28).

Five years later, evolution of 1400 randomly selected Saudi children in grades 1 through 9 was performed in central region to determine the prevalence of migraine and tension-type headache amongst the schoolchildren in Riyadh city.

Of the total amount of questionnaires distributed to them; 1181 (84.3%) were completed properly and so served as the basis for analysis. There were 573 boys (48.5%) and 608 girls (51.5%). Ages ranged from 6 to 18 years. Five hundred eighty-eight children (49.8%; 272 boys and 316 girls) had recurrent headache episodes not related to febrile illness in the year preceding the survey. Eighty-four children (7.1%; 37 boys and 47 girls) had recurrent episodes of migraine, and 504 (42.7%; 232 boys and 272 girls) had recurrent episodes of nonmigraine headache. For both boys and girls, the age-specific prevalence rate for nonmigraine headache rose steadily from around 15% at aged 6 to 7 years to nearly 60% after aged 15. For migraine, there was a sharp increase in the prevalence rate (from around 2% to around 9%) at aged 10 to 11, also in both boys and girls. Age-adjusted prevalnce for migraine between aged 6 and 15 was 6.2%. Due to the relatively poor sensitivity of some of the IHS criteria in children, this figure may underestimate the true magnitude of migraine in the population studied (29).

Other cross-sectional, questionnaire-based study was performed in 2009 to measure the prevalence of migraine and non-migraine headache among high school students at the National Guard Housing in Riyadh, Saudi Arabia. The sample consists of 1750 students that included from 4 schools by systemic random sampling for each school. The questionnaire included demographic data. The second part includes specific questions on headache, and whether there had been headache in the year preceding the survey, type of headache, and its diagnosis according to International Headache Society (IHS)

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criteria. Possible effect of headache on school attendance was recorded. They found that approximately one-third of the entire study sample had recurrent headache episodes. Female students showed a significantly higher prevalence of migraine, as well as non-migraine headache, with the least prevalence among the younger students of ages 16-17 years. More than one-third of all students were absent from school due to headache. They conclude that recurrent headache is prevalent among the high school students, and more among female students. Health education sessions at schools, primary care clinics, and the society in general are recommended to increase awareness for this common adolescent's neurological problem (30).

Burden of Primary Headache Disorders in Saudi Arabia was studied recently through a Country-wide population-based cross-sectional survey of the Arabic-speaking adult population (18-65 years) in Riyadh (31). Interviewers were trained surveyors. Access was by mobile phone, with sampling by random-digit dialing. Diagnoses were made algorithmically: the Arabic translation of a previously-developed questionnaire was validated in a sub-sample re-interviewed by a neurologist.

Further questions enquired into disability burden. The study shows that among 2,421 respondents (male 62%, female 38%; mean age 32.2 ±12 years), the observed 1-year prevalence of all headache was 63%, of migraine 32%, of TTH 27% and of medication-overuse headache (MOH) 2.7%. Odds ratio of migraine, TTH, and MOD for Female compared to Male were (OR = 1.9), (OR = 0.7) and (OR =3.4), respectively. Mean headache-attributed lost work-days per person/year was 24.0 days for migraine, 6.6 days for TTH and 53.4 days for MOH.

Estimated total headache-attributed lost work-days /year in the Saudi population were 99,571,330 days (4% of all working days). The conclusion of this study is that headache disorders, especially migraine, are highly prevalent in Saudi Arabia; enquiry into possible causes is called for. MOH is also prevalent. Unmet health-care need is evident. The lost-productivity burden is substantial. Effective treatments for headache do not appear to be reaching most of the population
Migraine substantially diminished students' performance at King Saud University in Riyadh as one of the studies showed. It was encountered among 103 out of 400 students (25.7%). However, only one third of university students with migraine (32.0%) use medication to manage the attacks. Migraine-related disability were minimal in 23.3%, mild in 21.4% while more than half of the students had either moderate (23.3%) or severe (32.0%) grades. The study showed that migraine was associated with reduction of the academic performance, with more increase in the severity of migraine.

In Feb 2013; a study performed to evaluate the Arabic version of HURT for clinical utility in primary care in Saudi Arabia & it showed that HURT Questionnaire in the Arabic language is a reliable and responsive outcome measure in an Arabic-speaking population of headache patients in primary care. It detects change in illness over time, but its clinical usefulness as an aid to management needs further study (23).

From all the previous studies we can conclude that ; headache prevalence headache varied from 8 to 12% in Saudi Arabia , they are highly prevalent ; especially migraine, headaches accounted 13% of all neurological outpatient ,they rare in those under 10 and above 50 years old , the main types is tension headache & migraine– , Positive family history for headache was present in 10% of the migraine cases & Migraine female to male ratio is 4:1 & over all headache female to male ratio is 2:1. 42.7% school children (grades 1 through 9) had recurrent episodes of nonmigraine headache & 7.1% of school children (grades 1 through 9) had recurrent episodes of migraine. More than one-third of all students were absent from school due to headache. 1-year prevalence of all headache was 63% F:M = 1.9 ; it is higher than other countries according to the results that were mentioned in the worldwide epidemiological part 1-year prevalence of migraine 32%, F:M = 0.7 , it also higher than other countries according to the results that were mentioned in the worldwide epidemiological part with big different . 1-year prevalence of TTH 27% F:M = 3.4 , it is almost equal to Asian result (lower than developed countries) . 1-year prevalence of medication-overuse headache (MOH) 2.7% Mean headache-attributed lost work-days per person/year was; 24.0 days for migraine, 6.6 days for TTH, 53.4 days for MOH & Estimated total headache-attributed lost work-days /year in the Saudi population were 4% of all working days. Effective treatments for headache do not appear to be reaching most of the population & Unmet health-care need is evident *Headache Services in Kingdom of Saudia Arabia*

Recent status:

In the KSA; we have plenty of specialized clinics & even specialized hospitals for the most common health problems like cardiac, hepatic, hematological, ophthalmic, gynecological & obstetric, pediatric diseases & specialized clinic for chronic health problem like diabetes mellitus, hypertension & obesity. Although headache disorders consider as an important health issues as we discussed in the section of headache studies & even that health care provider aware of the disabilities caused by headache, we still do not have a well-organized, specialized, effective or easily & equally reachable headache clinics. Many hospitals in our region nowadays have pain clinics with anesthesiologists who trait headache as case of chronic pain . A retrospective study was carried out in a pain clinic in KSA over a period of 5 years (January 2000 - December 2004) at a teaching hospital in Jeddah. The study showed that the common age of the patients visiting the clinic was 50-59 years (25.4%), with a preponderance of female (56.8%) over male (43.2%). For given diagnosis low back pain (LBP) was the most common (45.4%), followed by painful neuralgia (15.6%), headache (9.7%). The prevalence of headache was (12.1%). Headache disorders were more common among younger age group (32). Some private and semiprivate hospitals have headache clinics that are either not cover all types of patients or cannot be reached by all the population. Patients in those few headache clinics are usually managed by general neurologist who does not have a headache specialization.

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In most of general or governmental hospitals here; headache cases are very prevalence; they are usually seen by neurologist & some cases seen by ER physician, general practitioner or family physician that transfer the cases with recurrent attacks or chronic headache to the neurologist. Most of the headache cases seen in the neurology clinics are primary headaches especially migraine & TTH. Refractory cases usually referred to pain clinic in anesthesia department – if available - to help the patient by using medical treatment.
In some hospitals acupunctures & Chiropractic treatment are used to manage some headache cases.

We discuss with some neurologists (33) from different hospitals in KSA the way of dealing with headache cases in their hospitals. Most of them think that there is an urgent need for a specialized headache clinic since the number of headache cases per day range between 4-6 cases per day per one neurology clinic. Those clinics serve different neurological cases ; the neurologists usually do not have enough time to give the headache patients full attention & they may need to give more care & time for other sever disabling or fatal conditions that usually need detailed history , specific examinations & more investigations. Physicians use medical treatment only for prophylaxis; although Botux injections are available they are used only for other neurological cases like dystonia but not for headache. Only few numbers of private hospitals are using botux for chronic migraine prophylaxis. In KSA according to the neurologists that we contact: no surgical procedures are used to treat headache & neurostimulation technics are not available yet for headache management.

III. Conclusion

Epidemiological studies in KSA showed that; headache prevalence varied from 8 to 12%, headaches accounted 13% of all neurological outpatient & the main types are tension headache & migraine. 1-year prevalence of all headache was 63% F: M = 1.9 , migraine 32%, F:M = 0.7 , TTH 27% F:M = 3.4 & medication-overuse headache (MOH) 2.7%.

Mean headache-attributed lost work-days per person/year was; 24.0 days for migraine, 6.6 days for TTH , 53.4 days for MOH & Estimated total headache-attributed lost work-days /year in the Saudi population were 4% of all working days.
Effective treatments for headache do not appear to be reaching most of the population & Unmet health-care need is evident.

Our small surveys showed that; Almost half of our samples have monthly attacks of headache, 14-21 % have usually attacks of tension headache alone & 22-30% have different attacks of more than one type of headache, most of the people are using paracetamol or over the encounter medications, 7.2 - 12.5 % do not improve with the drugs they are using & most of the other improve partially with the treatment. Most of those with headache mentioned that its affect their life; daily activities, social relation, works or studies. 96.25% mentioned that they do not have headache clinics in their city.

Most of the responders think that doctors do not spend enough times with headache patients, headache patient do not have enough care & education in KSA. Most of them support the idea of initiating a specialized headache clinic in KSA for many reasons; headache is widely spread & affects people life, people do not know where to go to manage their headaches & some doctors do not deal with headache seriously.

In other hand most of the physician mentioned that they do not have a specialized headache clinic in their cities & they support the ideas of opening specialized headache clinic.

Neurologist thought to be the most responsible for headache management as chosen by 42.1 %, followed by general physician. All the physician involved in the survey agree that headache patient need more education , 89.7 % think that headache care need more organization , approximate percentage agree that headache is a disabling condition.

Physicians who support initiating headache clinics give many reasons; headache clinics will help the patients to know where to go, decrease the overcrowding in other clinics or in the ER and will help the physician to spend enough time for history & examination, educate patients about headache, prevent medication overuse, manage the chronic & complex headache cases and most importantly improve the quality of their lives.

Some physician suggest to give the family physicians or the general doctors special courses or educations about headache then they will be the one in direct contact with patients that will be responsible about diagnosis & management then they will refer some cases if needed to other specialties.

Our Future Plan Is

First: initiate a Saudi society for headache disorders; that will be responsible for: studying the ideas of initiating headache clinic and plan for applying it in the real world, educating doctors & patients through courses, workshops or conferences & publishing journals every 2 or 3 months.

Second; initiate headache clinic or center that can be reached by all the ages, genders & socioeconomic classes; & that provided efficient & effective care. This headache clinic can begin with diagnosis & management as an initial step, followed by involving other specialization especially psychology & psychiatric , then start detoxification programs & managing MOH & finally starting the neuro-stimulating technique or involving surgery in treating headache patients
Detailed plan will be finished by the end of 2013 & will be ready to use by any welcoming governmental hospitals but before opening the clinics as we mentioned; an organization should be built to help making specialized headache clinics dream (a real). Larger sample size is needed to be more informative about the current situation

IV. Summary

In Most of developed countries nowadays headache disorders gain more attention & care. Headache programs are started to develop in some countries to graduate a specialized headache doctors. Master program of headache is available in some developed countries & also headache medicine fellowship Programs that can provide physician with better education & training in headache management.

Headache clinics are available in many of the developed countries to. The good quality headache care should have the

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following characters; achieves accurate diagnosis, individualized management, has appropriate referral pathways, educates patients about their headaches and their management, is convenient and comfortable, satisfies patients, is efficient and equitable, assesses outcomes and is safe.

Kingdom of Saudi Arabia – which is one of the developing countries - lack of well-organized specialized headache clinics; although many epidemiological studies related to headache disorders have been performed. Most of the general population & physician are hoping to have this type of clinic soon since headache patients are suffering from not knowing where to go to manage their headache & physicians suffer from the overcrowding of headache cases in their clinic or in the ER where other cases have more opportunity for the care than headache.

Initiating a multidisciplinary headache organization or League against headache in KSA seems to be of a great benefit; this will organize performing new headache surveys or studies, publishing headache journals or articles & educating physicians & headache patients. This organization should ensure that headache care is easily accessible & can be reached by all the ages, genders & socioeconomic classes.

V. Acknowledgment

Prof. Paolo Martelletti & prof . Zaza Katsarava for their kind advices & supervision.

My parents: Mr. Mohammed Baarmah & Mrs.Fatimah Baarmah & all my family members for their continues support
My husband for supporting me during this program & for choosing the subject of this thesis.

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