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Yemeni Health & Medical Research Journal

It was of great importance to publish a scientific journal by the ministry of public health & population. A Journal that is interested in researches & health medical studies that are carried out by Yemeni & other researchers in Yemen.

Goals / objectives (purpose) :-

1. Publishing health & medical researches, which are carried out by Yemen researchers throughout free Journal, widely distributed among interest of health field personnel, in the institutes, facilities, Medical students, Medical schools teaching staffs, different Health institutes and other authorities.
2. Republish of Yemeni health & medical researches whish have been published in the international, regional journals and periodicals that are expensive and limited to distribute.
3. Encouraging Yemeni researchers to publish their researches & studies that have faced difficulties and complicated conditions and delay in publishing.
4. Collecting & documentation of Yemeni health & medical research that published to be available as references for interested researchers and students.

Publication requirements:

1. Researches must be directly related to health & medical problems in Republic of Yemen.
2. Research must fulfill all methodological & ethical condition / regulations of scientific researches.
3. Arabic abstract should be included with the research paper if the original language of research in English.

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4. Must not be more than five pages.
5. The journal is not responsible in any way to the publishers in terms of financial or any other responsibilities.
The Mexico statement on health research (2004)

The Mexico statement on health research call for action by:

1. National governments to commit to fund the necessary health research to ensure vibrant health systems and reduce inequity and social injustice.

2. National governments to establish and implement a national health research policy.

3. National governments to promote activities to strengthen national health research systems, including the creation of informed decision makers, priority setting, research management, monitoring performance, adopting standards and regulations for high quality research and its ethical oversight, and ensuring community, nongovernmental organization, and patient participation in research governance.

4. National governments to establish sustainable programmes to support evidence-based public health and health care delivery systems, and evidence-based health related policies.

5. National government, WHO secretariat, and the international community to support networking of national research agencies in conducting collaborative research to address global health priorities.

6. Funders of health research to support a substantive and sustainable programme of health systems research aligned with priority country needs.

7. All major stakeholders, facilitated by WHO secretariat, to establish a platform linking a network of international clinical trials registers to ensure a single point of access and the unambiguous identification of trials.
8. All major stakeholders to strengthen or to establish activities to communicate, improve access to, and promote the use of reliable, relevant, unbiased, and timely health information.

9. The international health research community to ensure broad support for national, regional, and global partnerships, including public-private partnerships, to accelerate the development of essential drugs, vaccines, and diagnostics, and to ensure the equitable delivery of these intervention.

10. WHO secretariat to report progress on the Mexico Statement at the UN Millennium Development Goals Summit in 2005, at a conference on health systems in 2006, and at the next Ministerial Summit on health research in 2008; and to convene a ministerial level international conference on research into human resources for health.
Cupping or Hejaama: A medical procedure in use by Yemenis to treat various ailments

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Abstract:

The Republic of Yemen has a long history of plural medical systems since thousands year’s age. Hejaama, an Arabian term for cupping and bloodletting, is one of medical procedure which still has been using to treat various ailments in Yemen since the pre-Islamic period. In this article, Hejaama is described as ethnic medical practice based on the anthropological study in Sana’a, Yemen, and is discussed from the cultural point of view. The findings, which are mainly collected from the participant observation in the female practitioner’s clinic and interviews to female patients, lead to the following conclusions. First, the Yemenis’ concept of blood or blood related illness is closely linked to the treatment of Hejaama. Yemenis believe that “bad blood” is accumulated in a specific place of their body and it causes pain. The Hejaama practice is very effective to relieve the pain because it can be removed such “bad blood” from the body. Moreover, Hejaama is recognized as the treatment for the people who have chronic pain, and not an all-purpose treatment. Patients choose the Hejaama practice by themselves for the relief of their pain from the various alternative medical procedures. Furthermore, Hejaama is understood as a religious activity, even though the practice may be not exactly Islamic in origin. In addition, Hejaama can be acted as the group therapy to ultimately relieve suffering. Hejaama is even now in demand by many people of Yemen, as the quick and simple treatment for chronic pain.
Introduction:-

Hejaama and traditional medicine in Yemen

The Republic of Yemen is on the southern most tip of the Arabian peninsula in the Middle East. Nearly all Yemenis are Moslems. There are some temporary residents, primarily foreigners, who are not Moslems. Concerning health and medicine in the world in general, it is always useful to examine the past thousands years of history. In most Arab countries and especially in Yemen, there is a long history of plural medical systems. Yemen’s medicinal history has been influenced by Hippocrates (460 – 377 BC), a Greek physician, who is credited with the development of ideas that call the main substances of the human body “bloodletting” “phlegm” “yellow bile” and “black bile,” It is important to notice here that “blood” is still an essential substance in Yemenis ethno physiology. This concept is closely related to Hejaama, an Arabian term for cupping and bloodletting a technique formerly employed for drawing blood.1 This concept also provides for dimensions of hot and cold, which are said to affect the status of health, by an idea that was introduced with the Hippocratic corpus. Besides, many Yemenis recognize Hejaama as Islamic medicine. This idea may be based on passages in the Ḥadith (a narrative record of the sayings and customs of Muhammad), which says that the prophet often performed cupping procedures.2 This religious context will be discussed later in the section titled “Hejaama as religious healing.” Moreover, in Yemen, there are other traditional medical practices, for example, the use of herbs or the cauterization. People may use any or a combination of these treatments, as well as modern cosmopolitan medical practices, for their general health maintenance, Hejaama is still famous among the practices of Yemenis. In this article, Hejaama will be described as an ethnic medical practice in Yemen, and the practice will be discussed from the perspective of health and its implication with people.

Research method :-

Data for this study have been collected primarily by following standard anthropological methods. Participant observation took place at the Hejaama clinic in Sana’a, the capital city of Yemen. Data relative to culture and lifestyle were collected for about seven months, from August 2000 to February 2001. Unstructured interviews were conducted with more than 70 patients of Hejaama at the place they were treated, and the interviews sometimes resulted...
in focus group discussion (FGD) among the patients. In order to collect information from the professional point of view, interviews were conducted with the practitioners of Hejaama. One was female (Hejaama), and one was male (Hejaama).

**Findings:**

*A day at the Hejaama clinic*

The following description may be suggestive and helpful for understanding Hejaama for a further discussion from the cultural, social, and medical aspects. This event occurred during a routine work in the Hejaama clinic in January 2001, that provides valuable information for understanding how the procedure is practiced on a daily basis.

The Hejaama clinic operated by a female is located on the rooftop of the practitioner’s house in an old Sana’a building. This is an open space; however, a curtain has been hung to prevent the neighbors’ watching. When I stepped up to the rooftop, a man and a woman were waiting their turn in separate places to undergo Hejaama. The woman, who was around 50 years old, came from a nearby village. She had had a backache for a long time and was visiting the clinic because she could no longer endure the pain she was suffering. She thought that her problem was associated with the blood, dam in Arabic, and also with something related to her heart, garb in Arabic. She had been to a hospital before, but she chose to stop going there because the doctors had given her the instructions that restricted her daily activities. In the clinic, Hejaama was applied at a point, determined by the practitioner, between the patient’s shoulder blades. The blood letting from that point was dark and viscous. The man who had been waiting was approximately 70 years old. He had come to Sana’a from a village with his relatives. A doctor had told him that he had had a heart attack, jalt fil garb in Arabic, in a hospital one year ago. He decided to receive the Hejaama and was recovering. He said that he returned for another treatment when he began to have aches again. Hejaama was applied at points on his lower back and on the back of his head.

After a while, another patient, a woman who was approximately 50 years old, came and complained that she had severe pain in both legs. She also said that the cold weather aggravated the pain. Hejaama was applied at a point on the inside of both knees where she had been treated before by doing Hejaama and cauterization, makhwa in Arabic.
While the practitioner, the patients and author were making small talk, a fourth patient entered. She was about 30 years old, looked sad, and had a yellowish cast to her face. Her relatives, who accompanied her, said that she had been sick since her two children had died in front of her in a car accident. The practitioner attributed her illness to sudden fright, fajia in Arabic, which is not treatable by Hejaama. Instead of Hejaama, the practitioner recommended a treatment called makhwa, which she herself applied. (Note: A week later, this patient returned to the practitioner and said that she was recovering and would not need any further treatment of makhwa).

Then, a fifth patient, a woman who was about 40 years old entered and complained of facial pain. Her nose was swollen with a 5 cm red spot, and her eye was almost closed. The practitioner explained her that Hejaama was not applicable in this case and that it would be better if she went to a hospital. The practitioner removed some blood from the swollen area with a needle and gave the sample to the patient for testing at the hospital laboratory.

Both the fourth and fifth patients had been advised the following, not only by the practitioner but also by the other patients who had been treated; At first, when the practitioner told these patients that no Hejaama could be applied, they both appeared to be dissatisfied with the decision and meekly expressed a desire for the treatment regardless of the practitioner's opinion. However, after the other patients supported the practitioner's decision and advised the patients citing their own experience, these patients realized that alternative treatments would be better than Hejaama.

**Practical techniques of Hejaama:**

The Hejaama procedure is considered to be fundamentally effective for treating blood-related illnesses, marad-addam in Arabic. Both the female practitioner and the patients believe that long-term pain at a specific site is caused by blood problems. Therefore, they believe that Hejaama relieves persistent pain. At first, when a new patient arrives, the practitioner seeks information about the nature of the complaint by inquiring about the location of the pain, the length of time that the patient has suffered, the medical history, and any other pertinent information about the pain. After an initial interview, the practitioner decides if a patient is suffering marad – addam, and determines where Hejaama should be applied. The following illustrations show the points
Hejaama, the corresponding points determined by the practitioner according to the complaints from the patient.

*Picture: The points of Hejaama*

The diagnosis by the practitioner usually refers to a body part such as a knee or shoulder, or to the name of an organ such as a kidney or a lung. Some diagnosis link bodily functions such as the blood pressure or the poor eyesight.

*The procedures for applying Hejaama are as follows:*

1. The practitioner sucks on the cup, mahajam in Arabic, to attach it to the appropriate site; when the cup is attached, the cock on the device is stopped with a paste, assab in Arabic. The cup is made of bull’s horns.
2. The cup is left in place for a while; the cupping point is checked, and four to eight cuts are then made with a small blade, mafsyan in Arabic. After this, the cup is applied again.
3. The second step in the procedure is repeated twice, which results in 12 to 24 open cuts one site.
4. The let blood is removed from time until all the “bad blood”, dam – alfaasid in Arabic, is removed from the body.

As the practitioner begins to incise the body, she says to the patient: “Pray to Allah May Allah put his peace on the Prophet.” A patient usually responds by saying: “Allah put his peace on the Prophet” or “Yah, Allah.” However, some patients remain silent.
When the practitioner decides that the treatment is over, he removes the cup, wipes the cupping point, and escorts the patient out of the clinic.

The treatment fee varies according to the number of points. The initial charge is approximately 1.20 US Dollars (about 200 Yemen Rials) for each point treated.

**Interview to female and male practitioners of Hejaama:**

Female and male practitioners of Hejaama were interviewed at their clinic in Old Sana’a. Their procedures are nearly identical except for the duration of the treatment. Following is a summary of the interviews. Differences in the answers are specified.

The profession of Hejaama is maintained by succession within a family, and, therefore, the family is very proud of Hejaama as a special treatment. It is a profession, not a part-time job. The techniques and principles of Hejaama are taught by the family; the female practitioner is taught by her mother-in-law, and the male practitioner is taught by his father.

The main principle of Hejaama is getting rid of the “bad blood” from the human body. Diagnoses of the illness and the causes of pain are always managed by the practitioner. Each patient describes his ailment; however, the major decisions regarding the ailments and procedures are made by the practitioner. If a practitioner decides that Hejaama would be an inappropriate treatment for an ailment which is described by a patient, the practitioner would suggest an alternative treatment, such as cauterization.

In general, approximately 10 patients visit the clinic each day. The female practitioner requires about three to five hours for each patient if all of the “bad blood” is to be removed. Comparing her, the male practitioner needs time of treatment for 30 – 45 minutes which is enough he thinks. Many patients seek treatment at the Hejaama clinic Just before Ramadan, a period of fasting.

**A narrative of a case history:**

The following is a case history of a male patient, to illustrate how a patient seeks treatment and satisfaction with Hejaama.
One day, a man suddenly fainted and was unconscious for 45 minutes, which marked the beginning of his case history. The family thought he was dead, but, after he recovered, he was taken to a hospital in Yemen. Although he was treated with cosmopolitan Medicine for one year, the treatment was ineffective. He traveled to Morocco to seek better treatment with cosmopolitan medicine. Even after three years of following the doctor’s instructions, his condition remained poor. He vomited blood. He visited Mecca and drank holy water, ma’ zamzam in Arabic, that caused him to feel a little better. However, he continued to spit blood and had persistent pain throughout his body for a long time. He finally returned to Yemen and visited the male practitioner of Hejaama. He felt very well after receiving Hejaama. Since that time, he has continued to visit the clinic to undergo Hejaama whenever he experiences pain. He was once treated by a magician, musyauwiz in Arabic, for the relief of his pain, but he did not like the experience. He has also taken herbal medicine for a kidney stone because he thought Hejaama could not cure this kind of ailment.

*Interviews to Hejaama patients* :

At the female practitioner’s clinic, more than half of the patients are villages other Old Sana’a. People coming from far-away locations departed their villages after sunrise and arrived at Sana’a around 9 a.m. They finished their treatment and returned to their villages at sunset. The trip and treatment took an entire day. Even though it was a long way, some people chose to go to the female practitioner in Sana’a because there was no female practitioner in their village or they considered the female practitioner in Sana’a to be exceptionally reliable and skilled.

Most patients can identify a specific point on their body where they have experienced long-term pain. Patients sometimes believe pain is emanating from a shoulder, when, in fact, it is coming from the heart, garb in Arabic, according to the diagnosis of the female practitioner. Patients receiving Hejaama never make general complaints such as dullness or tiredness. Some of them told the author that their problems were related to a blood illness, marad-addam in Arabic, but others did not. On the contrary, all of them said that letting “bad blood” relieved the pain. Most of them said that a bad climate or cold weather aggravated their pain. When the patients were asked about the difference in the pain from the ailment and the pain from cupping is acceptable.
because it is temporary in nature, whereas the pain from the ailment is intolerable and permanent.

All of the patients said that they would return for additional treatment if the pain were to become intolerable again. In addition, they believed that herbal medicine was not related to their pain, which they thought could only be cured by Hejaama; however, they used herbs to treat other illnesses.

Discussion:

The author observed female patients as they were being treated at the female practitioner’s clinic. Separate clinic for men and women are culturally important in Yemen because women, especially in Sana’a are not permitted to reveal their faces and bodies to men. Also, women’s health care is considered to be different from that of men. Cosmopolitan medicine is now available in Yemen, and many conferences and public relations efforts are used to distribute knowledge about illnesses. However, because much of these activities is not open to women, they often stay at home as housewives and rarely attend functions in mixed company. Women may tend to keep a traditional perspective on health. This gender difference will be further investigated and discussed in the future research.

Conclusion:

The concept of blood or blood-related illnesses may have come from the Hippocratic concept of the four humoral substances. Nevertheless, the author received no theoretical explanations of "blood" from the Yemenis. They only expressed the idea that blood is a very important substance in the human body. Furthermore, they noted that the blood flows into peripheral areas of the body because of mechanism the heart. Their image of blood, therefore, may be likened to a one-way current of a river. Their idea is linked to the Yemeni explanation for “bad blood”. “Bad blood”, addam-alfaasid in Arabic, accumulates in a specific place, and this causes pain. To monitor “bad blood” the female practitioner constantly checks the blood during the treatment. She confirms whether the let blood is bad or not. Dark or viscous blood suggests that a patient has had pain for a long time. Red and thin blood suggests that an illness with “bad blood” is new. In this sense, it is understandable that a patient would assume that she is cured when all the “bad
blood” is let and that another treatment might be necessary if “bad blood” accumulates again.

**Consideration from a biomedical context:**

The concept of blood explained above is not identical to the one given as a biomedical explanation. It seems that a curable process recognized by Yemenis is remote from current biomedical technology. On the other hand, condition such as stagnant blood in the veins, “congestion”, due to thrombus, inflammation or cancer, are acknowledged by biomedicine. Although the current article deals primarily with cultural issues, here are a few assumptions on the Hejaama treatment as they related to a biomedical context.

First, some tissue might be revitalized with Hejaama. After Hejaama, the body functions in a similar was as wounds heal naturally. Inflammation generally occurs around damaged tissue, which removes bacteria from the area. New blood streams are then produced in the peripheral areas, and new tissue grows as the wound heals. The tissues around the Hejaama point undergo vital actions to cure a wound. These vital actions may have a positive effect on chronic pain as a result of the stimulus. However, such an assumption may be required if pain is associated with superficial body parts. The procedure would obviously be a symptomatic treatment and not an ultimate one.

Moreover, Kugelmann introduced the definition of pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage. He also noted, "The fact is that there is no one-to-one relationship between tissue damage and pain. Clinical definitions of pain today define as a perceptual experience." 3 If pain is a certain perceptual experience, it may be assumed that a patient could have the pain relieved by counteraction. A patient might receive temporary relief from chronic pain as the result of having it replaced with the slight pain caused by the Hejaama itself.

**Indication of Hejaama and demands from patients:**

All the patient at the Hejaama clinic have chronic or long-term pain in a specific area. Hejaama is not suitable for patients complaining of temporary aches and pains. Some ailments in which Hejaama is not advised include sudden fright, fajia in Arabic, headaches from the common cold, and bruises, because these are the temporary pain. Swagman introduced a concept of
sudden fright, Faija, that he called "Fija" in his articles, and he described the ailment is treated with a hot iron on the body. The treatment discussed by Swagman is similar to cautery, makhwah in Arabic, which the female practitioner performed on a patient as the above findings. Many of the illnesses, which Hejaama was denied by the female practitioner, is that the pain were of short duration or vague in nature. Heinrich, who has described the medical systems of indigenous Mexicans, has said "minor ailments of relatively short duration are of little concern." Heinrich's conclusion may also have been drawn by the Yemenis, who make a similar judgment when deciding whether or not to use Hejaama.

Most patients, who are treated by Hejaama repeatedly, know that Hejaama is for chronic pain and not all-purpose treatment. Many patients try other treatments, such as cautery, massage, or cosmopolitan medicine, before resorting to Hejaama. Hejaama was believed to be the best treatment because it provides faster relief than the other methods and because patience is required only during the Hejaama procedure. Furthermore, there are no difficult instructions to be followed later. It might also be important that the practitioner does not ask any patient to schedule a follow-up appointment. This makes patients feel as if they are in control of managing their own pain.

**Hejaama as religious healing:**

It is not certain that Hejaama is commonly recognized as Islamic medicine although some Yemenis think it is. Alhakimi says Islamic medicine is, for example, reading the Holy Qur’an, but does not mention Hejaama as the Islamic medicine. In fact, there are no words related to the Hejaama in the Holy Qur’an; however, there are some in the Hadiith. The Hadiith is a collection of sayings by the Prophet Muhammad. Swagman says that prophetic medicine is closely linked to beliefs confirmed in Islamic doctrine. He also says that prophetic medicine contains pre-Islamic folk beliefs. From this point of view, it may be better to say that Hejaama is pre-Islamic medicine, which is derived from traditional Arabic medicine. At this juncture, Hejaama could be presented as religious healing from the more comprehensive context of religion, which is not limited to Islam.

As described in the findings, the majority of patients pray to Allah when Hejaama is applied. These prayers are encouraged by the repetition of practitioner’s advice to “Pray to Allah.” In addition, some of the patients said
that their pain is a trial from Allah, and thus, they pray to Allah. In general, the lifestyle of the Yemenis is strongly influenced by Islamic common sense, and they often pray to Allah in daily conversations. During Hejaama, however, the patients have a stronger self-awareness that they pray. Moreover, the patients believe that Hejaama is a good method for breaking the Ramadan fast. Furthermore, the major difference between the female practitioner and the magician, musyauwiz in Arabic, is that female practitioner’s work is linked to Allah, whereas the of musyauwiz is linked to a class of Islamic spirits called jinni. The opinions expressed in the interviews suggest that Hejaama is a ritual treatment within a religious context. In this research, the findings suggest that Hejaama as the Yemenis practice is understood as a religious activity by the people who subject themselves to it, even though the practice is not exactly Islamic in origin.

**Hejaama as group therapy:**

During the course of this study, it became clear that Hejaama is also effectively used as group therapy. Group therapies are often used for a variety of psychotherapies and in the management of illness such as cancer and AIDS. In group therapy, approximately six to ten individuals meet under the guidance of a trained group therapist. During a group meeting, members decide what they want to talk about. The members help each other ease difficulties about their problems through group discussion.

At the clinic, the following observations were noted: 1. Approximately five to fifteen patients visited the Hejaama clinic in the morning hours. 2. Each needs at least 2 hours of treatment; therefore, most of the patients were treated together in the same place. 3. They sat in a circle facing each other. 4. Most of the time, patients were not acquainted each other. 5. They made small talk during the course of their treatment. 6. Sometimes they discussed their pain, its treatment, and their case histories. 7. They tended to give opinions and advice to other patients about alternative treatments.

It seems that this course of events is similar to that in the typical group therapies. In fact, the patients have opportunities to speak about their problems among a community that each member is also suffering. They share their experiences for reducing pain. On the other hand, none of the patients said that they talked and chatted because it relieved the pain. Even the female practitioner, who sometimes acts as a group therapist, did not indicate that this was her point of view. It may be, therefore, that the group talk is an unconscious performance that ultimately relieves suffering.
Conclusion: -
Hejaama, or Arabian cupping, is traditional folk medicine or ethnomedicine, practiced in Yemen. It is based on an ethnophysiology, in which blood is important for the adjustment of bodily conditions. Furthermore, “bad blood” accumulates in specific places as a result of blood-related illnesses. From a biomedical viewpoint, Hejaama may be considered to consist of vital activities, and also, to counteraction of temporary pain which relieve chronic pain. Moreover, Hejaama may be considered to be religious healing or group therapy. In either case, it is clear that Hejaama is in demand by many people in Yemen. Hejaama is recognized as a quick and simple treatment for chronic pain, and it allows people to manage their suffering by themselves. In addition, Hejaama is recognized as a treatments that specializes in blood problems; therefore, alternative treatments are recommended if Hejaama is not considered to be a suitable treatment for the ailment in question. This approach is supported by practitioners of Hejaama and by their potential patients.

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Reference & notes: -
1. Hejaama here is called Arabian cupping to distinguish it from Chinese cupping, which has differences.
EXPLORATION OF ADVERSE PSYCHOLOGICAL SYMPTOMS IN YEMENI KHAT USERS BY THE SYMPTOMS CHECKLIST – 90 ( SCL – 90 )

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Source :- Addiction, 99,61-65

Abstract :-

Aim
The present study was aimed at assessing associations between psychopathological symptoms and khat use in the Yemeni population.

Setting
The survey was performed in 2000/2001, in different zones including three urban and three rural areas.

Participants
The survey was carried out in 800 Yemeni adults (15 – 76), both male and female, representing mainly urban population of student, state employees and housewives.

Design
A cross-sectional survey was undertaken using face-to-face interviews and no preset selection criteria regarding profession, socio-economic status, age or gender.

Measurement
The Symptoms Checklist –90 (SCL-90) was used containing 90 items, which cover nine scales of the following domains: somatization, depression, anxiety, phobia, hostility, interpersonal sensitivity, obsessive-compulsive, hostility, interpersonal sensitivity, paranoia and psychoticism. Details of khat use and socio-demographic data were also collected.

Findings
At least one life –time episode of khat use was reported in 81.6% of male and 43.3% of women. Male users tended to use more frequently. The incidence of adverse psychological symptoms was not greater in khat users; in fact, there was a negative association between the incidence of phobic symptoms and khat use.

Conclusions
Khat use is very common in the Yemen population, particularly men, but it is not associated with adverse psychological symptoms.

Keywords
khat, psychiatric symptoms, Yemeni population, SCL-90.
Introduction:

Khat (qat, kat) is a major cultural phenomenon in Yemen. An evergreen shrub of the family Celastraceae (Kennedy 1987a, b, c, d), it was described and named by botanist Peter Forsskal (Bassher 1980), who died in Yemen in 1763, and he likens the Arabic name khat to Catha (Weir 1985a, b, c). Khat consumption is common in certain countries of East Africa and Yemen (Luqman & Danowski 1976) and southern Saudi Arabia (Soufi et al. 1991). The historical evidence for the beginning of Khat suggested that the practice originated in the southern Red Sea area (Yemen or Ethiopia) prior to the mid-14th century, (Weir 1985a, b, c). During the last two decades, due to the development of road networks and the availability of air transport, the habit has spread considerably to Europe and the United States (Kalix 1991).

The major psychoactive ingredient is the phenylalkylamine (-) - alpha aminopropiophenone named as cathinone (UN Documents 1975; Szendrei 1980; WHO 1980). Cathinone is a psychostimulant structurally similar to amphetamine (Schorno & Steinegger 1979). Cathinone has pharmacological properties (Kalix 1980; WHO 1980; Zelger & Carlinil et al. 1980) and effects similar to amphetamine both at central and peripheral catecholaminergic synapses (Knoll 1979; Kalix 1983a,b; Kalix & Braenden 1985).

The effects of khat were reviewed by a WHO report in 1980. Several authors have addressed the human aspects of khat use with particular reference to the issue of physical effects (Halbach 1972; Luqman & Danowski 1976; Kennedy 1987a; b, c, d; Raja’a et al. 2001; Hussein et al. 2002;) behavioural and psychiatric aspects (Halbach 1972; Hughes 1973; Luqman & Danowski 1976; WHO 1980; Dhadhphale et al. 1981; Giannini & Castellani 1982; Gough & Cookson 1984; Nencini, Ahmed & Elmi 1986; Critchlow & Seifert 1987; McLaren 1987; Pantelis et al. 1989; George et al. 1995; Alem & Shibre 1997; Hassan et al. 2002) and potential tolerance capacity, psychic and physical dependence (Eddy et al. 1965; Laurent 1962a, b; Lemordant 1966; Halbach 1972; Luqman & Danowski 1976; Kennedy, Teague & Fairbanks 1980; Nencini et al. 1984; Giannini et al. 1986; Kennedy 1987a; b, c, d).

Hughes (1973) and Hassan et al. (2002) have described the occurrence of anxiety and depression in khat users and a positive association between these symptoms and khat consumption has also been suggested.
Nencini, Ahmed & Elmi 1986; Pantelis et al. 1989; Hassan et al. 2002). There have been sporadic reports of a possible association between khat use and occurrence of hypomania, aggressive behaviour or psychoses among users (Laurent 1962a, b; Margetts 1967; Dhadphale et al. 1981; Gainnini & Castiellani 1982; Gough & Cookson 1984; Critchlow & Seiferi 1986; McLaren 1987; Pantelis et al. 1989; George et al. 1995; Alem & Shibre 1997).

On the other hand, regarding mood and behaviour Kennedy, Teague & Fairbanks (1980), Schopen (1981), Schopen cf. Weir (1985 a, b, c) have reported no abnormal pattern or any indication of a rush of excitement or loss of physical or mental control during traditional khat sessions. Psychoses due to khat use have been considered by many authors to be rare phenomena (Laurent 1962a, b; Halbach 1972; Bassher 1980; WHO 1980; Kalix 1987).

The present study was aimed at assessing the psychopathological aspects of khat use in the Yemeni population.

**Methods:**

All relevant ethical safeguards have been met in relation to subject protection.

**Subject selection:**

The current cross-sectional survey was performed in 2000/2001, involving 800 Yemeni subjects. Subjects were recruited by household systemic random sampling from different zones including three urban (Sana’a, Taiz, and Aden) and three rural areas (Al-Turbha, Al-Barh and Lahej). The population in these areas (6.3 million) is approximately 35 – 40% of entire Yemeni population. No preset selection criteria were used in terms of occupation, socio-economic status or age range. The apparent over-representation of students in the sample (472 students, 242 state employees, 35 unemployed, 51 household) is due to several factors. The major one is that in a population with a mean age of 26.7 years (see Table 1) the ‘student’ designation usually covers a range occupations where the respondent is also studying. Subjects reported being health and without manifest physical or mental health problem or having had a history of psychiatric illness. However,
no exclusion criteria, related to physical or mental health status, were used. Eight respondents were excluded because of incomplete data.

Table 1. The parameters of interviewed population and their subgroup distribution

<table>
<thead>
<tr>
<th>Subjects</th>
<th>No</th>
<th>Age range</th>
<th>Mean age ± SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample</td>
<td>792</td>
<td>15 – 76</td>
<td>26.7 ± 0.3</td>
</tr>
<tr>
<td>Males</td>
<td>510</td>
<td>15 – 67</td>
<td>28.0 ± 0.4</td>
</tr>
<tr>
<td>Males users</td>
<td>416</td>
<td>16 – 67</td>
<td>28.4 ± 0.5</td>
</tr>
<tr>
<td>Males non-users</td>
<td>94</td>
<td>15 – 49</td>
<td>26.2 ± 0.8</td>
</tr>
<tr>
<td>Females</td>
<td>282</td>
<td>15 – 60</td>
<td>24.2 ± 0.4</td>
</tr>
<tr>
<td>Females users</td>
<td>122</td>
<td>18 – 55</td>
<td>25.3 ± 0.7</td>
</tr>
<tr>
<td>Female non-users</td>
<td>160</td>
<td>15 – 60</td>
<td>25.4 ± 0.4</td>
</tr>
</tbody>
</table>

General subject descriptions and subgroup assignment.:

The parameters of the interviewed population and their subgroup distributions are given in Table 1.

Setting :

Interviews on khat-related habits and completing Symptom Checklist – 90 (SCL-90) questionnaires were undertaken either during the sessions or independently of them in a familiar setting, usually at subject’s home. Khat sessions usually took place in the afternoon, between 2 and 7 p.m. Only soft drinks, coffee and tea were consumed during the sessions, smoking (narghile, pipe or cigarette) also took place. Questionnaires were administered between 1.5 and 3 hours after the commencement of sessions.

Measures :

The question related to use rate was worded to reflect the actual habits (‘How often have you taken khat this year?’). The use rate was designated as occasional (once a week or less), light (2-3 days a week), frequent (4-6 days a week) or heavy (at least every day). When filling in the questionnaires,
subjects were instructed to relate their experience for the last week including their present status. The SCL-90 (Derogatis 1977) was used. It was designed to reflect psychological symptoms in community, medical and psychiatric respondents. It consists of a total of 90 items related to somatization (n=12 items), obsession-compulsion (n=10 items), interpersonal sensitivity (n=nine items), depression (n=13 items), anxiety (n=10 items), hostility (n=six items), phobic anxiety (n=seven items), paranoid ideation (n=six items) and psychoticism (n=10 items) and seven additional items including disturbances in appetite and sleep. Each item is rated from 0 to 4. The mean for each scale is calculated and considered to be positive if the mean is 1 or greater.

Results:

A total of 81.6% men and 43.3% women (67.9% of total sample) reported at least some khat use. Frequency of use in male and female subjects is given in Table 2. The occurrence of psychiatric symptoms, such as hostility, interpersonal sensitivity, somatization, depression, anxiety, phobia, obsession, paranoia and psychoticism, is presented in Table 3. The incidence of phobic symptoms was significantly lower in khat users, whereas other symptoms were unrelated to khat use.

Table 2. The frequency of khat use

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Total (538)</th>
<th>Male</th>
<th>Female (122)</th>
<th>( \chi^2 )</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occasional</td>
<td>16.2% (87)</td>
<td>10.3% (43)</td>
<td>36.1% (44)</td>
<td>28.496</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>Light</td>
<td>29.9% (161)</td>
<td>30.5% (127)</td>
<td>27.9% (34)</td>
<td>0.095</td>
<td>N.S.</td>
</tr>
<tr>
<td>Frequency</td>
<td>19.1% (103)</td>
<td>20.2% (84)</td>
<td>15.6% (19)</td>
<td>0.672</td>
<td>N.S.</td>
</tr>
<tr>
<td>Heavy</td>
<td>34.8% (187)</td>
<td>34.8% (187)</td>
<td>20.5% (25)</td>
<td>6.872</td>
<td>p&lt;0.05</td>
</tr>
</tbody>
</table>

Occasional: once a week or less; Light: two-three times a week; Frequent: 4-6 days a week; heavy: at least every day.
Table 3. The incidence of psychiatric symptoms

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Total (n = 792)</th>
<th>Male (n = 510)</th>
<th>Female (n = 282)</th>
<th>χ² Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NU (n=254)</td>
<td>KU (n=538)</td>
<td>NU (n=94)</td>
<td>KU (n=160)</td>
</tr>
<tr>
<td>Somatization</td>
<td>55.5%</td>
<td>51.7%</td>
<td>36.2%</td>
<td>48.8%</td>
</tr>
<tr>
<td></td>
<td>(141)</td>
<td>(278)</td>
<td>(34)</td>
<td>(203)</td>
</tr>
<tr>
<td>Obsession-compulsion</td>
<td>76.4%</td>
<td>76.2%</td>
<td>68.1%</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>(194)</td>
<td>(410)</td>
<td>(64)</td>
<td>(312)</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>67.3%</td>
<td>62.2%</td>
<td>55.3%</td>
<td>59.9%</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>(171)</td>
<td>(335)</td>
<td>(52)</td>
<td>(249)</td>
</tr>
<tr>
<td>Depression</td>
<td>66.1%</td>
<td>60.6%</td>
<td>56.4%</td>
<td>54.6%</td>
</tr>
<tr>
<td></td>
<td>(168)</td>
<td>(326)</td>
<td>(53)</td>
<td>(277)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>53.2%</td>
<td>46.1%</td>
<td>40.4%</td>
<td>40.4%</td>
</tr>
<tr>
<td></td>
<td>(135)</td>
<td>(248)</td>
<td>(38)</td>
<td>(97)</td>
</tr>
<tr>
<td>Hostility</td>
<td>45.7%</td>
<td>42.9%</td>
<td>38.3%</td>
<td>40.1%</td>
</tr>
<tr>
<td></td>
<td>(116)</td>
<td>(231)</td>
<td>(36)</td>
<td>(167)</td>
</tr>
<tr>
<td>Phobic anxiety</td>
<td>55.5%</td>
<td>37.7%</td>
<td>43.6%</td>
<td>35.3%</td>
</tr>
<tr>
<td></td>
<td>(141)</td>
<td>(203)</td>
<td>(41)</td>
<td>(147)</td>
</tr>
<tr>
<td>Paranoid ideation</td>
<td>53.5%</td>
<td>50.0%</td>
<td>42.6%</td>
<td>46.6%</td>
</tr>
<tr>
<td></td>
<td>(136)</td>
<td>(269)</td>
<td>(40)</td>
<td>(194)</td>
</tr>
<tr>
<td>Psychoticism</td>
<td>39.0%</td>
<td>42.4%</td>
<td>35.1%</td>
<td>40.6%</td>
</tr>
<tr>
<td></td>
<td>(99)</td>
<td>(228)</td>
<td>(33)</td>
<td>(169)</td>
</tr>
</tbody>
</table>

* Positive symptom distress index higher than unity.

Discussion:-

There was a high incidence of khat use. Males were heavier users than females. In a previous related study Mancioli & Parrinello (1967) estimated that 90.26% of males and 58.55% of females over the age 12 chewed khat, but only 69.26% of the male and 34.91% of the female users could be classified as habitual chewers. Kennedy (1987 a, b, c, d) in an extensive study carried out in 1974-76, has estimated that approximately 50-60% of women and 80-85% of men chewed khat more than once a week.

The absence of positive association between the incidence of psychological symptoms is perhaps surprising. It is quite possible that khat.
taken by banch chewing (the main form in Yemen), would rarely yield plasma levels needed for the development of psychosis (Halbach 1972).

Furthermore, several surveys reporting khat-induced psychoses involved subjects who were taking the substance in an unfamiliar setting (UK, US), often in a socio-economically handicapped position and culturally isolated state (exile, immigrant etc.). These specific conditions may have contributed to the development of symptoms in several ways.

The study is obviously limited in a number of respects. The sampling procedure may have inadvertently excluded heavier khat users or those who were suffering manifest psychiatric disorders who would not be available for interview. However, even so one might expect some degree of association in the sample if there was one in the population as a whole. It is also possible that the measures were not sufficiently sensitive to detect associations that were present. However, the measure of psychological symptoms has been used before and the incidence of khat use was not very dissimilar for other estimates.

Overall, it appears that khat use is not necessarily linked to psychological morbidity; any association that is found may reflect an interaction with other environmental factors.

Acknowledgements:-

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References: -


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EBM: Teaching to Med. Students
(Presented in the forth conference of Arabic Gulf Countries held in Riadh (Saudia Arabia) on 13-14 March 2005).
Abstract:

Background Medicine and drug therapy is a rapidly changing field and we are always open to new evidence or evidence that we may have overlooked. Teaching of these topics to students required continues reevaluation. Evidence based drug therapy (EBT) means integrating the best evidence, the individual characteristics of the patient, and individual clinical expertise, into a decision making process which leads to optimal drug therapy. This is a complex process that requires a detailed understanding of the evidence, including how the evidence was derived and an appreciation of the magnitude of the benefits and/or risks. Evidence-based medicine (EBM) is a style of practice in which doctors manage problems by reference to valid and relevant information. Unfortunately, research consistently has shown that clinical decisions rarely are based on the best available evidence. Since medical students are the essential foundation in future effective health care systems, it follows that providing evidence-based medicine would reflect positively on the health practice.

Objectives Our aim was to explore the awareness and the attitude of medical students and post graduated candidates towards evidence-based medicine (EBM) and determine their related educational needs.

Methods We analyzed and compared the response of medical students in Althawra teaching hospital, University of Sana'a, Yemen, to understand the drug use in regard to the EBT (clinically evidenced) after their basic study in applied medicine (physio-patho-pharmaco-logies). 100 medical students and post graduated candidates and 10 professors-lectures in the faculty of medicine were questioned with semi-structured questionnaire-interview.
Results showed a necessity for correlation between basic evidences and clinical evidences (EBT) in teaching and training of medical students and post graduate candidates. Examples of drugs to be considered in special correlation were digoxine in treatment of heart failure, nitrates in IHD, and prednisolon-sodium cromoglycate in bronchial asthma. Drugs used for long-term medication was the field of requesting more EBT than acute. Some medications even used frequently with no clinical agreements of their benefit, example of this we found piracetam (nootropil) and pentoxiphyline for CVA and hepamerz and essential in treatment of liver cirrhosis. Participants welcomed EBM and agreed that its practice improves patient care. They had a low level of awareness of extracting journals, review publications and databases. They thought that the most appropriate way to move towards EBM was by learning the skills of EBM to medical students, and using evidence-based guidelines developed by experts.

Conclusions Efforts towards improving access to evidence-based guidelines and summaries are urgently needed. Teaching the medical students and candidates about using EBM, literature searching and critical appraisal skills by feasible and friendly methods should be considered.

Keywords Attitude, awareness, evidence-based medicine, medical students, Yemen.

Introduction:-

Medicine and drug therapy is a rapidly changing field and we are always open to new evidence or evidence that we may have overlooked. Teaching of these topics to students required continues reevaluation.

The definition of evidence based medicine (EBM) is ambiguous, and the term acquires different meanings in different contexts (1). The concepts of EBM are evolving as limitations of early models are addressed (2).

Initially, EBM focused mainly on determining the best research evidence relevant to a clinical problem or decision and applying that evidence to resolve the issue. More recently it has been defined as "the integration of
best research evidence with clinical expertise and patient values”. This early formulation de-emphasised traditional determinants of clinical decisions, including physiological rationale and individual clinical experience (2). "Personalising" the evidence to fit a specific patient's circumstances is a key area for development in evidence-based medicine (2).

Commonly, EBM is defined in a generally positive and individualistic way that emphasizes the importance of outcomes and states, more or less, that a doctor makes his decisions according to the best available knowledge, and that this knowledge is acquired by the best possible empirical scientific methods (3, 4).

Evidence based drug therapy (EBT) means integrating the best evidence, the individual characteristics of the patient, and individual clinical expertise, into a decision making process which leads to optimal drug therapy. This is a complex process that requires a detailed understanding of the evidence, including how the evidence was derived and an appreciation of the magnitude of the benefits and/or risks (3).

Sackett’s definition of evidence based medicine (EBM): The conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. Its practice means integrating individual clinical expertise with best available external evidence from systematic research (3).

This is limited to the best evidence, the randomized-controlled, double-blind clinical trial, or meta-analysis of randomized controlled trials, whenever possible. We try to focus on trials that measure the true goal of therapy (e.g. morbidity and mortality) and not surrogate markers (e.g. blood pressure).

The only available evidence may be based on surrogate endpoints, cohort studies, case control studies, or sub-group analyses of randomized controlled trials. Such forms of evidence are interesting and hypothesis generating, but are not conclusive. Questions of the efficacy of interventions usually mean that randomised controlled trials should be sought, while questions of risk usually mean that prospective cohort studies should be sought (5).

EBT narrowly defines “evidence” for effective, ethical therapy as “results” from double-blind research done with randomly controlled clinical trials. This particular model of research requires manualized, standardized, and proceduralized treatment protocols for specific “disorders”, leaving no room for exploratory therapy aimed at the discovery of personal meanings.
Interest in evidence based medicine (EBM) has grown exponentially, and professional organisations and training programmes have shifted their agenda from whether to teach EBM to how to teach it (6).

Not all doctors want or need to learn how to practise all five steps of EBM (asking, acquiring, appraising, applying, assessing) (6, 7). Indeed, most doctors consider themselves users of EBM, and surveys of clinicians show that only about 5% believe that learning all these five steps is the most appropriate way of moving from opinion based to EBM (6).

The term "evidence based medicine" was coined at McMaster Medical School in Canada in the 1980s to label this clinical learning strategy, which people at the school had been developing for over a decade (8).

Clinicians can either implement it directly in a patient's care or use it to develop team protocols or even hospital guidelines. They can also use evidence to revolutionise continuing medical education programmes or audit (8).

Several surveys, however, have reached the conclusion that clinical decisions are rarely based on the best available evidence (9, 10).

It is strongly believed that if the concept of delivering an evidence-based practice (EBP) is embraced, it will improve medical care in a number of different ways. First, it will support shared decision making with users, which is advocated increasingly as the ideal model for making decisions within the medical encounter (11,12). Secondly, EBP will help maintain the central role of family medicine in health care (13). Finally, it will make general practice an even more rewarding discipline within which to practice.

We know that patients often do not wish to be involved in making key decisions about their health; however, even when they do want to be involved, we do not know the ideal way to present information to patients (2).

No information is available in Yemen on the interest in the use of evidence-based medicine (EBM). The objectives of this study are to explore the awareness and the attitude of physicians (practitioners and teachers) towards EBM and, hence, their related educational needs to incorporate such practice into their routine patient management. The study is based on the study of Alansari et al (14) and the work of McColl et al, which was carried out to determine the attitude of UK GPs towards EBM (15).
Methods:

The study design is a cross-sectional questionnaire survey.

This study is a survey of a random sample of physicians in Althawra Teaching Hospital (ATH), the biggest hospital in Sana'a–Yemen. It is conducted as a cross-sectional and interview study, included 100 house officers and post-graduated medical students and 10 professors-lectures in the faculty of medicine in the general medical wards. Included physicians agreed and cooperative to interact with information required and answered the 8 item semi-structured questionnaire/interview protocol.

All of the study sample doctors were given an added and modified questionnaire adapted from Alansari et al (14) and McColl et al (15). Using a previously published questionnaire was thought to add strength to the study because it has already been tested and because it would allow for an international comparison to be drawn (14). A pilot study was carried out, two months back, which led to some modification and local adaptations.

The questionnaire was completed by the investigator doctors, to ensure that participant doctors completed the questionnaire and understood the meaning and to ensure confidentiality and avoid missing responses for some items of the questionnaire.

Data included in the questionnaire were based on the following items:

i. Personal professional characteristics.

ii. Awareness and familiarity of EBM

iii. Attitudes towards EBM. This part was assessed using examples of drugs effect to determine the attitudes towards certain statements about EBM.

iv. Views on how best to move from opinion-based medicine to EBM.

v. The awareness of the availability of extracting journals, review publications and databases relevant to EBM and their usefulness; and their access to relevant databases and the worldwide web (WWW).

vi. Views on major barriers to practicing EBM.
We analyzed and compared the response of medical students represented by house officers to understand the drug use in regard to the EBT (clinically evidenced) after their basic study in medicine (physio-patho-pharmaco-logies) in compare to the post-graduate medical candidates and the awareness of the professors in the faculty.

The Epi info statistical computer program (Epi 0.6) was used for the statistical analysis.

**Results:**

Personal professional characteristics were summarized in table (1). The mean age of the house officers (50 doctors, 50% of the sample) was 27 years while the post-graduated (also 50 doctors, 50% of the sample) was 33 years, with 75% male and only 25% females. On average the post-graduated candidates had graduated 5 years previously and had been practicing for the Arabic board 1-6 years in the hospital.

Table (1) Professional characteristics of the participant doctors in the general medical wards:

<table>
<thead>
<tr>
<th>Age</th>
<th>25-45 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size physicians</td>
<td>Graduated</td>
</tr>
<tr>
<td></td>
<td>Post-graduated</td>
</tr>
<tr>
<td>professors</td>
<td>Clinical professors</td>
</tr>
<tr>
<td></td>
<td>Pharmacology professors</td>
</tr>
<tr>
<td>Sex</td>
<td>Males</td>
</tr>
<tr>
<td></td>
<td>Females</td>
</tr>
</tbody>
</table>

**Attitudes and Awareness towards EBM:**

Table (2) shows the attitudes of the participating physician towards EBM. Either direct awareness by understanding the concept of the EBM, 12 (24% of post-graduated or 12% of all), or indirect by awareness of the big clinical trials of the endpoints (22%) with also prominence of the post graduated physicians (28% vs. 16%). Drugs used for long-term medication was
the field of requesting more EBT than acute (48% vs. 38%). The current promotion of EBM was welcomed by most of them. Most of them agreed that practicing EBM improves patient care, and expressed the opinion that research findings were useful in the management of patients, but agreed that the adoption of EBM makes more load on already overloaded physicians.

Table (2) Attitudes and Awareness towards EBM

<table>
<thead>
<tr>
<th>Character</th>
<th>Total physicians</th>
<th>Postgraduate physicians</th>
<th>Graduated physicians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug effects depend on:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- preferred pharmacological action</td>
<td>31 (31%)</td>
<td>21 (42%)</td>
<td>10 (20%)</td>
</tr>
<tr>
<td>- preferred big CLINICAL TRIALS</td>
<td>22 (22%)</td>
<td>14 (28%)</td>
<td>8 (16%)</td>
</tr>
<tr>
<td>EBM good concept</td>
<td>12 (12%)</td>
<td>12 (24%)</td>
<td>Zero (0%)</td>
</tr>
<tr>
<td>Drugs required more EBM:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Treatment for short term</td>
<td>38(38%)</td>
<td>18 (36%)</td>
<td>20 (40%) 28</td>
</tr>
<tr>
<td>- Treatment for long term</td>
<td>48(48%)</td>
<td>20 (40%)</td>
<td>(56%)</td>
</tr>
<tr>
<td>Access to the databases</td>
<td>4 (4%)</td>
<td>4 (8%)</td>
<td>Zero (0%)</td>
</tr>
<tr>
<td>Access to the www</td>
<td>6 (12%)</td>
<td>6 (6%)</td>
<td>Zero (0%)</td>
</tr>
<tr>
<td>Like to attend courses to EBM</td>
<td>11(91.6%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Access to the databases and the worldwide web:-

Only 4% of the physicians had access to Medline or other bibliographic databases, and only 6 % had some kind of access to the WWW. Of the awarded, no one reported having training in literature searching, or attended a course on practicing EBM. On the positive side, almost all of them (91.6 %) would like to attend courses relevant to practicing EBM.

Baseline knowledge of Physicians and examples of EBM oriented drug therapy:-

Five questions about some example drug therapy have been answered differently by the participants as in table (3). In chronic ischemic heart diseases ABC regimen (aspirin, B-blockers, and angiotensin converting enzyme inhibitors) depend on EBM conclusion selected by almost all of the post-graduated physicians (92%), while digoxine and sodium cromoglycate reported...
to be the first choice more the newly graduated physicians (36% and 66%). In stroke many drugs in practice used may not have agreement and did not proved by clinical big trials of endpoints, piracetam and dipyridamol were selected firstly more by graduated physicians (25% vs. 12% and 10% vs. 4% respectively). Lactulose proved to be effective in liver cirrhosis, reported to be used by post-graduated physicians (48%) while the graduated selected the use of Hepamerz (46%) as in table (3).

Table(3) Baseline knowledge of Physicians and examples of EBM oriented drug therapy

<table>
<thead>
<tr>
<th>diseases</th>
<th>Drug therapy</th>
<th>Total physicians</th>
<th>Postraduate physicians</th>
<th>Graduated physicians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic IHD*</td>
<td>ABC regimen^</td>
<td>61 (61% )</td>
<td>46 (92% )</td>
<td>15 (30% )</td>
</tr>
<tr>
<td></td>
<td>Nitrates first</td>
<td>35 (35% )</td>
<td>8 (16% )</td>
<td>27 (54% )</td>
</tr>
<tr>
<td>CHF**</td>
<td>Digoxine first</td>
<td>23 (23% )</td>
<td>5 (10% )</td>
<td>18 (36% )</td>
</tr>
<tr>
<td>Bronchial asthma</td>
<td>Sodium cromoglycate first</td>
<td>53 (53% )</td>
<td>20 (40% )</td>
<td>33 (66% )</td>
</tr>
<tr>
<td>Cerebrovascular accidents- Stroke</td>
<td>Aspirin piracetam dipyridamol</td>
<td>44 (44% )</td>
<td>24 (48% )</td>
<td>20 (40% )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31 (31% )</td>
<td>6 (12% )</td>
<td>25 (50% )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 (7% )</td>
<td>2 (4% )</td>
<td>5 (10% )</td>
</tr>
<tr>
<td>Liver cirrhosis</td>
<td>Lactulose Hepamerz</td>
<td>36 (36% )</td>
<td>24 (48% )</td>
<td>12 (24% )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31 (31% )</td>
<td>8 (16% )</td>
<td>23 (46% )</td>
</tr>
</tbody>
</table>

* IHD: ischemic heart diseases  
** CHF: congestive heart failure  
^ ABC: Aspirin, B-blocker, Captopril (angiotensin converting enzyme inhibitors)

Major barriers to practicing EBM:-

In table (4) the major perceived barriers to practicing EBM were limited resources and facilities (41.7 %), and lack of scientific media and continuing medical education (CME) (58.3 %).

How to move from opinion-based to EBM:-

More than half of the awarded physicians (58.3%) claimed to be practicing EBM currently by seeking and applying EB summaries. The largest
proportion of the physicians (83.3%) thought that the best way to move from opinion-based medicine to EBM was by using guidelines or protocols developed by expert colleagues. (two-thirds claimed to be doing so currently) while 66.7% thought it should be by learning the skills of EBM for medical students and just 8.3% by learning skills to all physicians in practice (Table 4).

Table (4) Barriers and solutions for better use of EBM

<table>
<thead>
<tr>
<th>Character</th>
<th>Post-graduated physicians</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major barriers to practicing EBM :-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited resources and facilities</td>
<td>5</td>
<td>41.7 %</td>
</tr>
<tr>
<td>Lack of Scientific media and CME</td>
<td>7</td>
<td>58.3 %</td>
</tr>
<tr>
<td>How to change to EBM practice :-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Practicing EBM by summaries</td>
<td>7</td>
<td>58.3 %</td>
</tr>
<tr>
<td>- By using guidelines or protocols</td>
<td>10</td>
<td>83.3 %</td>
</tr>
<tr>
<td>- Learning skills of EBM to all physicians</td>
<td>1</td>
<td>8.3  %</td>
</tr>
<tr>
<td>- Learning skills of EBM to medical students</td>
<td>8</td>
<td>66.7 %</td>
</tr>
</tbody>
</table>

**Discussion**

As we continue through the era of research-informed medical care, the benefits that our patients will receive and our satisfaction with our own clinical performance will depend increasingly on making care decisions that incorporate the clinical state and circumstances of each patient, their preferences and actions, and the best current evidence from research that pertains to the patient's problem.

The best clinical practice of medicine have to be applied in the central teaching hospitals. In Yemen, Althawra Teaching Hospital (ATH) in Sanaa, represented the biggest and the modern first hospital in the country. In it, the best training departments and consultants for both the graduate and the post graduate physicians. For that it is the appropriate area for applying EBM in Yemen.

The physicians in (ATH), however, had a low level of awareness of well-known resources of EBM and, even if they were aware, did not make (or can not) use of them in clinical decision making. This is reflected by only 12% of the postgraduate physicians have good concept. The drug therapy examples
given explained that many physicians already using the guidelines and summaries of EBM like ABC regimen for chronic IHD (61%) and aspirin in CVA (44%) especially the postgraduate (92% and 48% respectively) even not awarded directly to the concept. In contrast some example drugs still in use even used frequently with no clinical agreements of their benefit (non EBM), example of this we found piracetam (nootropil), dipyridamol (persantin), and pentoxiphyline for CVA and heperanz and essential in treatment of liver cirrhosis. Other examples of drugs to be considered in special correlation were digoxine in treatment of heart failure, nitrates in IHD, and sodium cromoglycate in bronchial asthma especially preferred by the house officers (36% vis10%, 54% vis 16% and 66% vis 40% respectively).

Without using current best evidence, the practice of medicine possibly is at risk of becoming out of date (16, 17). This is very probably because it has been shown that a significant negative correlation exists between our knowledge of up-to-date care and the years that have elapsed since graduation from medical schools (18).

Only 4% and 6% of the physicians had access to Medline and to the WWW, respectively, this is lower that recorded by nearby countries (14). All of them acquired this by no special training and in the post graduated period. The past years, however, have a widespread governmental and private uptake and utilization of the Internet. There is a need to train the physicians in electronic literature retrieval methods. The Internet fosters the practice of EBM by facilitating the generation, synthesis, dissemination and exchange of research evidence (19).

The major barriers to practicing EBM were limited resources (41.7%) and lack of CME (58.3%), this vary from that in Riyadh, lack of time 50.9% (14) and McColl’s study, 71% (15).

In McColl’s study, the attitudes of the patients were perceived as a barrier in 18% of the responses. The corresponding figure in Alansari et al (14) was 9% and no in our study, this may due to the feeling to accept new advances to improve the medical care.

The largest proportion of the physicians (83.3 %) thought that the best way to move from opinion-based medicine to EBM was by using EBP guidelines or protocols and then by learning the skills of EBM to medical students (66.7%), and by summaries in 58.3%, while only 8.3% by learning skills to all physicians. This use of EBP guidelines or protocols is comparable (even higher) to the respondents in McColl’s study (57%). Learnig skills to
medical students (66.7%) were also comparable to the Alansari study (14), but not to the (old, busy) physicians (only 8.3%) which is near to the only 5% reported by McColl’s study.

It has been suggested that practicing the traditional five steps of EBM is needed for the conditions that we encounter every day in order to be ‘up to the minute’ and very sure about what we are doing (16). In our situation and even in many other situations up to year or month may be accepted than up to day or minute, because the impracticality for use day- to day practice.

This probably explains why large proportions were interested in learning the skills of EBM to the medical students and postgraduates and also to use guidelines of the experts. Clinical trials usually of big sizes and of long durations, years, so once accepted in EBM for a year, it may not be changed easily (months or years), and so the practicable application is guidelines and summaries by experts in addition to change in the basic of trained physicians. Other forms, like monthly medical meetings and yearly conferences may be suitable. It has been found; however, that operating in the ‘appraising’ mode is time consuming and not suitable for busy overloaded practitioners (20), and the emphasis now is shifting towards ‘information mastery’ rather than traditional EBM (21).

**Conclusions:-**

This study is the first of its kind in Yemen. The results are expected to help postgraduate tutors, and health authorities, university departments of Medicine and local research centers in designing local strategies for encouraging the implementation of EBM.

- Prompt actions are needed to improve access and implementation of EB guidelines and summaries. We suggest three levels of EBM teaching:

1. FAMILIARITY WITH EBM AND CLINICAL TRIALS FOR THERAPIES
2. EBM EXTRACTION FROM SOURCES IN ACCEPTED GUIDELINES AND SUMMARIES.
3. APPLICATION OF GUIDELINES AND CRITERIAS FOR EVIDENCED THERAPY.
Results showed a necessity for correlation between basic evidences (basic sciences) and clinical evidences (EBT) in teaching and training of medical students and post graduate medical candidates.

On the other hand, teaching all the physicians the skills of practicing EBM by feasible and friendly methods should also be encouraged as a goal.

Strategies for encouraging change and overcoming the barriers should be part of the decision makers’ vision.

It is probably time to establish an EBM Yemeni Centre that will help to implant the principles, methods and practices among the physicians and in the medical faculties throughout Yemen.

Acknowledgments:

The authors thank all the physicians and the professors who took part in this survey and made this work possible. We would also like to thank the general director, Professor Ahmad Alansi, and vis director, of Althawra T. Hospital, Sanna, Professor Abdulkhaliq Alnouno and the Dean of the Faculty of Medicine and Health Sciences, University of Sanaa, Professor Talal Abobaker those have generously supported this study.

References:


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Abstract: -

A 7-day in vivo test was conducted, in order to study the response of P. falciparum to chloroquine among the basic school children, in Hadibou Soqotra Island. The study showed that among study population (728 pupils), a 15.38% of chloroquine resistance was observed, that divides equally between RI and RII degrees.

Introduction: -

Malaria still remains one of the most devastating diseases occurring in the world today. At present, about 100 countries or territories in the world are considered malarious(1), almost half of which are in Africa, south of the Sahara. In the eastern Mediterranean region at the present time about 45% of the population live under the risk of both P.falciparum and P.vivax malaria, and an additional 15% under the risk of P.vivax alone. The estimated number of cases occurring in the region annually is of the order of 13 million, of which 70% are caused by P.vivax. Of all estimated cases, 96% occur in just five countries: Afghanistan (mostly P.vivax), Iraq (exclusively P.vivax), Somalia, Sudan, and
Yemen (mostly P.falciparum). The estimated number of deaths is about 35000 a year, with the majority occurring in Somalia, Sudan and Yemen. ( )

Republic of Yemen is a malarious area; malaria represents a public health problem in this country. Out of population 60% (9,500,000) live under the risk of malarial infection and 2 millions of population are attacked annually, of whom 1% die, mainly children. Plasmodium falciparum is the predominant species of malaria parasites in Yemen, which represents nearly 90% of all reported cases.

Socotra is the largest Yemeni Island situated in the Indian Ocean with a surface area of approximately 3650Km2, hot climate, and 56514 inhabitants. Malaria in the Island is highly prevalent disease; it is either highly mesoendemic or hyper endemic and spread all over the year.

One of the greatest challenges facing malaria control worldwide is the spread and intensification of parasite resistance to antimalarial drugs. The limited number of such drug has led to increasing difficulties in the development of antimalarial drug policies and adequate disease management. (1) Drug resistance in malaria has been defined as the ability of the parasite strain to survive and or multiply despite of the administration and absorption of drug given in a dose equal to or higher than this usually recommended, but within the limit of tolerance of the subject. (7). Although, there is no officially adopted antimalarial drug policy enforce in Yemen, chloroquine is regarded as a first line drug for treatment of uncomplicated malaria. However, in recent years more practitioners are seeing cases of clinical failure to the drug and are turning to the newer antimalarials.

The emergence of a low grade (RI level) chloroquine resistant Plasmodium falciparum in Republic of Yemen was reported in 1987.
then, however, only few studies have been conducted, and no of such studies have been done in Socotra before this study.

**I Methods And Materials**

1. Study design :-

   A cross-sectional descriptive study (prevalence of chloroquine resistant p.falciparum malaria) was conducted using the standard WHO 7-day in vivo test.

2. Study area :-

   the study was done in Hadibou, the capital city of Socotra Island with population of approximately 15,000.

3. Study population:

   endemic areas, studies of out patient clinics are not of benefit because patients don’t consult these clinics unless they fail to treat them selves. (11)

4. Sampling technique :-

   Survey method among the basic school children, so there was no sample.

5. Data collection method :-

   a) In vivo method :-

      Blood film was collected daily for administration of chloroquine in a total dose of 25mg/Kg body weight (10mg base/KgBW on day zero and day 1, and 5mg base/Kg BW on day 2).

   b) Including criteria :-

      i. Single species infection (P.falciparum).
ii. Not less than 2000 and not more than 100,000 asexual parasites per cubic ml. of blood.

iii. No history of drug taking of 4–amino quinolines, quinine and tetracycline within the previous 14 days.

c) Calculation of drug dosage and administration of medication:-

- chloroquine was used with the base dose (150mg).
- chloroquine was given in divided dose over 3 days (10 mg/kg on day0 & day1 and 5mg/kg on day2).

d) Monitoring the response of malaria infection to treatment:

The grading system is based on the threshold of microscopic potency of parasitemia as follows:-

- Sensitivity(s): -

  Clearance of asexual parasites within 7 days of beginning of treatment with no recrudescence.

- Resistance(R): -

  1- (RI): Clearance of asexual parasites as in sensitivity followed by recrudescence within 7 days.
  2- (RII): Marked reduction in No. of asexual parasites without clearance followed by recrudescence.
  3- (RIII): No marked reduction of asexual parasitemia.

It should be noted that resistance is graded in terms of the effect of the drug on the parasites in the peripheral blood, not on the effect of clinical signs. In the non-immune, these aspects run in parallel. In the semi-immune, clinical relieve may be produced without great reduction in parasitemia.
Table No (1): The parasite clearance time:

<table>
<thead>
<tr>
<th>Day</th>
<th>Unclearance of parasitaemia</th>
<th>Clearance of parasitaemia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Day 0</td>
<td>26</td>
<td>100</td>
</tr>
<tr>
<td>Day 1</td>
<td>20</td>
<td>76.92</td>
</tr>
<tr>
<td>Day 2</td>
<td>7</td>
<td>26.92</td>
</tr>
<tr>
<td>Day 3</td>
<td>5</td>
<td>19.23</td>
</tr>
<tr>
<td>Day 4</td>
<td>2</td>
<td>7.69</td>
</tr>
<tr>
<td>Day 5</td>
<td>2</td>
<td>7.69</td>
</tr>
<tr>
<td>Day 6</td>
<td>4</td>
<td>15.38</td>
</tr>
<tr>
<td>Day 7</td>
<td>4</td>
<td>15.38</td>
</tr>
</tbody>
</table>

Figure No (1): Parasite rate in the sample:

Figure No. (2) Prevalence of chloroquine resistance:

-24-
In the basic school in Hadibou, 1255 children are registered, only 728 of them were included in our study by survey technique, because the school became off (Ramadan and Eid’s holidays) after three days only of starting the survey. Most of the children, who were not included in the study, are pupils of the first, second and third classes and belong to the (6-9) age group. As a consequence, the age group of (10-14) years old was the largest age group (78.98% of our study sample).

From 728 children of, 82 (11.26%) children were with positive parasitaemia as shown in figure No.(1). From our point of view, this can be explained due to the little amounts of rains in this year in comparison to the ordinary amount of rains in the rainfull season (Nov.-Dec.) yearly, and also due to our study followed the well arranged campaign for roll back malaria in the Island, that funded by WHO and the Ministry of Public Health and its other partners, started in Feb.2000. The highest parasite rate is in the age group of (6-9) years old, but unfortunately, the most of children included in this age group were not included in our study, because they were in holidays as mentioned above. And according to the sex, parasite rate is slightly more in males.
(11.68%) than females (10.73%), which is of no significance from our point of view as males were more than females in our sample, and may be because male pupils are in contact with than the female pupils.

From the total 82 positive cases, only 26 (31.7%) children met criteria to be included in the test. The reasons for exclusion were:

1. Low parasitaemia, less than 2000 parasites per mm$^3$ (23 children).
2. High parasitaemia, more than 100,000 p/ mm$^3$ (8 children).
3. Other plasmodium infection (6 children with p. vivax infection).
4. Positive history of taking chloroquine within the previous 14 days (15 children).
5. Discontinuation of full 7-days tests (4 children).

More than 46% of the tested population (26 children) have initial parasitaemia less than 10000 parasites/mm$^3$, and as in table No.(1) more than 73% (19 children) of the tested pupils became clear of parasitaemia at day 2 this percentage increased to 92.31% (24 pupils) at day 4 but two pupils regained parasitaemia at day 6. So at day 7, 22 pupils (84.62%) became free of parasitaemia while 4 pupils (15.38%) only stilled with positive parasitaemia.

As consequence, the prevalence of chloroquine resistance in Hadibou, basic school is 15.38%, as shown in figure No.(2). From our point of view, the reason for this high prevalence is the drug pressure due to more frequent self medication or antimalarial drug use for management of any kind of fever or headache.

And by monitoring of parasitaemia among the resistant cases, there was marked reduction at day 2 for all cases, and half of them became free of
parasitaemia at day 4 but they became positive at day 6 again. In the other half the reduction continued till the day 7 without clearance.

According to the standard definition and classification of chloroquine resistance, the existing resistance among our sample is of early RI (7.69%) and RII (7.69%) degrees, as shown in figure No. (3).

In comparison to other studies conducted in the other areas in Yemen, there is no RII resistance attained in all previous 7-day invivo study conducted in the Republic of Yemen. The worst result of the previous 7-days in vivo tests was attained in Hodiedah governorate in Red Creascent camp and Salakhana zone among Yemeni returness during 1995, where the prevalance of chloroquine resistance was more than 12% of RI degree. Three 28-days in vivo tests were conducted in the country in Al-Makatra (Taiz governorate), Zabid (Hodiedah governorate), Ebn Khaldon hospital (Lahaj governorate) at 1987, 1991 and 1998 respectively, where they revealed 6%, 31% and 2% respectively, of RI/RII degree of resistance. And only two in vitro studies were conducted in Goal / Madram (Lahaj governorate) and Tihama (Hodiedah and Taiz governorates) at 1988 and 1989 respectively. So, comparatively, we thought that other types of study (28-in –vivo or in vitro) might reveal more prevalence of chloroquine resistance situation in the Island.

The chloroquine resistance situation in the Island seems not bad in comparison to the neighboring countries especially in the east of Africa, since RIII degree of resistance exist in Ethiopia and Eritrea according to the study conducted in 1996, where as in Somalia (the nearest country to the Island ) grades RII and RIII was observed in 1987 and rapidly increased to 72% in
1988, which now indicates the worst situation in this country especially with continuation of the civilian war.

**Conclusion:-**

In order to study the response of *P. falciparum* to chloroquine among the basic school children in Hadibou, Soqotra Island, a standard 7-day in vivo test was conducted. The study showed that among study population (728 pupils), a 15.38% of Chloroquine resistance was observed, of which (7.69%) represent early RI degree & (7.69%) represent RII degree.
Review Article on Schistosomiasis

Ahmed M. Al-Haddad*

Definition:

Schistosomiasis (Bilharziasis) is an ancient, debilitating, chronic infectious human disease associated with significant morbidity and mortality. It has been recognized as one of the most important public health problems in tropical and subtropical areas.

Pathology:

The life cycle of the parasite is characterized by alternation of generations. Sexual stage takes place in a definitive vertebrate, while asexual stage completes the cycle in suitable snail (the intermediate host). The adult worm of Schistosoma haematobium lives in the vesicle plexus of the urinary bladder, wall, while S. mansoni and S. japonicum are found in the interior mesenteric veins of the intestine wall where they reach sexual maturity. After the copulation between male and female, eggs are proceeded down and pass out the venous through tissues into the lumen of the urinary bladder intestine and escape to the outside the body via urine or stool. Eggs that fail to reach the lumen of either urinary bladder or gut are trapped in organ tissues resulting in inflammation and immuno-pathological changes.

* Professor of community medicine, Sana’a University.
Natural history

1- Eggs of the parasite have been recovered from both Egyptian and Chinese showing that the infection was present in both of these early civilizations of mankind.

2- Fujii in 1847 described in details the Katamaya Syndrome (fever, urticaria, and weakness), the disease that later found to be caused by a new species of schistosoma, which accordingly was given the name of Japanese schistosomiasis.

3- In 1851, Bilharz found distome trematodes in the uro-genital blood vessel during post-mortem examination of Egyptian corpses.

4- The life cycle was described just before the World War I.

5- Preventive means that are formed by WHO put in use after the World War II.

Epidemiology

1- Schistosomiasis is blood flukes that intrude upon the venous channels of human (the definitive host).

2- Schistosomiasis is transmitted via fresh water snail (the intermediate host). The mature cercaria can penetrate the skin or mucous membrane of human body and becomes schistosoma (the adult worm) which migrates against blood stream and reach the terminal venous adjacent to the wall of either urinary bladder or intestine.

3- The following five species can infect human body:
   a) Schistosoma haematobium.
   b) Schistosoma mansoni.
   c) Schistosoma japonicum.
   d) Schistosoma intercalatum.
   e) Schistosoma mekongy

While the following four species infect human body occasionally:
   a) Schistosoma bovis.
   b) Schistosoma mallhei.
c) *Schistosoma rodhaini.*

d) *Schistosoma margrebowie.*

4- Schistosomiasis is a chronic infection affects more than 200 million people over the world.

5- There are endemic areas in the world where several hundreds millions (more than 600 million people) are at risk of exposure, and about 200 millions are actually infect. This covers 74 countries in Africa, Middle East, South America, Caribbean and South East Asia.

6- The highest prevalence is typically found in tropical areas with lakes, streams and large rivers, especially where they used for irrigation.

7- Schistosomiasis is second among the most global six prevalent tropical diseases that also include malaria, lymphatic filariasis, onchocerciasis, African tryponosomiasis and lyprosy.

8- Worldwide morbidity is about 20 millions while mortality is estimated to exceed 100000 per year.

**Schistosomiasis in Yemen:-**

Schistosomiasis in Yemen is endemic and represents a major problem, which was one of the ten prioritized health problems in the last 2 – 3 decades. Both *S. haematobium* and *S. mansoni* are prevalent in most of the country especially in governorates of Sana’a, Taiz, Dhalie, Dhamar, Ibb, Abyan, Amran, Hajjah, Sa’ada, Hadramout and Mahweet as shown in the map (3-1).

The population of Yemen is about 20 millions. It is estimated that about 3 – 4 millions people could be infected with one or both types of schistosomiasis especially in rural population which depended on water sources, agriculture and health education.
Map (3-1) Distribution of Schistosomiasis in Yemen.

According to results of random 17 school- and 22 field-based studies conducted in 2002 in the above-mentioned governorates, the overall estimated prevalence of S. haematobium and S. mansoni is shown in table (1).

Table (1). Prevalence of schistosomiasis as per schools and fields involved

<table>
<thead>
<tr>
<th>Study Place</th>
<th>Examined samples (N)</th>
<th>Infected samples (N)</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Combined</td>
<td>Urine</td>
<td>Stool</td>
</tr>
<tr>
<td>Schools</td>
<td>3772</td>
<td>3762</td>
<td>3469</td>
</tr>
<tr>
<td>Fields</td>
<td>11108</td>
<td>11086</td>
<td>9543</td>
</tr>
<tr>
<td>TOTAL</td>
<td>14880</td>
<td>14848</td>
<td>13012</td>
</tr>
</tbody>
</table>
On the other hand, the prevalence rates of S. haematobium and S. mansoni resulted from examining 14444 persons selected randomly in a survey conducted in the eleven most endemic governorates are 18.1 and 18.6 respectively, as shown in table (2).

Table (2). Prevalence of schistosomiasis in the surveyed governorates in 2002

<table>
<thead>
<tr>
<th>Governorate</th>
<th>Total examined persons</th>
<th>Urine Samples (N)</th>
<th>Stool samples (N)</th>
<th>Infected samples (N)</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Haematobium</td>
<td>Mansoni</td>
<td>Haematobium</td>
<td>Mansoni</td>
</tr>
<tr>
<td>Taiz</td>
<td>1315</td>
<td>1299</td>
<td>1288</td>
<td>170</td>
<td>310</td>
</tr>
<tr>
<td>Hajjah</td>
<td>1620</td>
<td>1618</td>
<td>1548</td>
<td>404</td>
<td>180</td>
</tr>
<tr>
<td>Amran</td>
<td>1284</td>
<td>1284</td>
<td>-</td>
<td>376</td>
<td>-</td>
</tr>
<tr>
<td>Mahweet</td>
<td>800</td>
<td>800</td>
<td>781</td>
<td>102</td>
<td>49</td>
</tr>
<tr>
<td>Sa’ada</td>
<td>2730</td>
<td>2726</td>
<td>2600</td>
<td>82</td>
<td>590</td>
</tr>
<tr>
<td>Sana’a</td>
<td>1160</td>
<td>1160</td>
<td>1246</td>
<td>231</td>
<td>552</td>
</tr>
<tr>
<td>Dhalie</td>
<td>1520</td>
<td>1520</td>
<td>1401</td>
<td>367</td>
<td>232</td>
</tr>
<tr>
<td>Ibb</td>
<td>679</td>
<td>679</td>
<td>679</td>
<td>19</td>
<td>186</td>
</tr>
<tr>
<td>Hadramout</td>
<td>1018</td>
<td>1018</td>
<td>1018</td>
<td>177</td>
<td>-</td>
</tr>
<tr>
<td>Dhamar</td>
<td>1068</td>
<td>1068</td>
<td>1068</td>
<td>284</td>
<td>155</td>
</tr>
<tr>
<td>Hodiedah</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
<td>330</td>
<td>475</td>
</tr>
<tr>
<td>TOTAL</td>
<td>14444</td>
<td>14422</td>
<td>12879</td>
<td>2542</td>
<td>2729</td>
</tr>
</tbody>
</table>

It was found that fresh water snails involved in transmission of schistosomiasis in Yemen are:

a) Bulinus truncatus, B. beccarii and B. wrighti in case of S. haematobium.

b) Biomphalaria pfeifferi in case of S. mansoni

**Clinical features**

a) Mansoni can be divided into 5 stages:

1- Stage of invasion: Swimming itch.

2- Toximic stage: Typhoid-like illness.

3- Acute intestinal stage: Dysentery-like illness.
4- Irreversible stage:
   - Chronic intestinal form (abdominal pain, swollen, hemorrhagic mucous contains parasite eggs, and polyp in rectum, colon and small intestine).
   - Hepato-spleenic form (liver fibrosis, portal hypertension, and cirrhosis).
   - Cardiopulmonary form (deposition of eggs in the pulmonary arterioles may lead to obstruction and endocarditic).

5- Rare stage: (lesion in nerves, heart, skin, genital-urinary organs, and gall bladder).

b) Japonicum can be divided into 3 stages:
   1- Early Katayama stage: Urticaria, cough, fever, Cramp, abdominal pain, and diarrhea.
   2- Irreversible stage.
   3- Cirrhotic stage with ascites and anaemia.

c) Haematobium can be divided into 3 stages:
   1- Stage of invasion.
   2- Stage of haematuria, dysuria and pain.
   3- Stage of bladder carcinoma.

**Investigation of schistosomiasis**

In addition to clinical features, the diagnosis of schistosomiasis is made based on the following:

1- Direct stool examination for eggs presence.
2- Direct urine examination for eggs presence.
3- Cellophane fecal thick smears (KATO).
4- Quantitative urine filtration.
5- Rectal biopsy for eggs identification.
6- Serological test (IgM, IgG and IgE).
7- Leucocytosis and Oesinophilis.
8- Skin test to identify the reaction infection.
9- Ultrasoundography.
10- Radiography of urinary tract and abdomen.
11- CT-scanning.
12- Magnetic resonance imaging (MRI).

**Specific treatment**

The objective of the treatment is to kill the adult schistosoma and to stop egg laying. There are many recent drugs used, but the new drugs that mostly used are:

1- Praziquantel: 40mg/Kg of the body weight given orally as single dose.
2- Mirazid (commiphora): 2 capsules are taken before breakfast for 3 consecutive days.

**Prevention and control**

1. Actions have to be taken to eliminate the intermediate host by:
   a) Killing malluscides host (niclosamide).
   b) Alteration of the aquatic environment (water).
   c) Biologient control (snail eating fish).
2. Elimination of parasite from the definitive host. (specific treatment).
3. Preventive of infection of the definitive and intermediate host.
   a) Health education.
   b) Environmental sanitation.
   c) Adequate and safe water supply.
   d) Availability of swimming pool.