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ORIGINAL ARTICLE

The effect of *Cassia angustifolia* (senna) leaves on the fasting blood sugar in a sample of mild diabetic Yemeni patients

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Abstract:

Senna is an herb indigenous to Africa, Arabia and India, and is mentioned in the traditional Islamic medicine as a remedy for many diseases. This article is performed to study the effect of senna leaves on fasting blood sugar (FBS) in twenty male Yemeni patients with type II diabetes mellitus (FBS 130-150 mg/100ml), with no other health problems. Three clinical trials were performed, in the first trial each patient received two placebo tablets daily for 10 days, and in the second trial each patient received the standard hypoglycemic herb: fenugreek seeds 6 grams daily for 10 days, and in the third and last trial each patient received a macerate of 200 mg of senna leaves daily for 10 days. A washout period of two weeks was kept between each two successive trials. The results showed that senna leaves significantly lowered the FBS by 14.3%, fenugreek seeds by 12%, while placebo tablets did not change this parameter in the patients.

1. Introduction:

Senna (*Sennae Folium*) consists of the dried leaflets of Cassia senna leaf. The species found in Arabia, Somalia, Sind and the Punjab called *Cassia angustifolia*, Family: *Leguminosae*. Other species found is *Cassia acutifolia Delile* that is known in commerce as Alexandrian or Khartoum senna. The senna plants are small shrubs about one meter high, with paripinnate compound leaves. Senna appears to have been used since the 9^{th} or 10^{th} century, it is introduced into medicine by the Arabian physicians, who used both the leaves and the pods. It was formely exported through Alexendria, from where the name of the Sudanese drug is derived. Alexandria leaves are collected mainly in September from both wild and cultivated plants. The branches bearing leaves and pods are dried in the sun and convoyed to Omdurman.Senna leaves contain the glycosides: sennosides A, B, C, and D, aloe-emodin-dianthrone-diglucoside, and a naphthalene glycoside: tinnevellin glucoside. Sennosides A and B are both hydrolyzed to give 2 molecules of glucose and the aglycones sennidin A and B, sennidin A is dextrorotatory and B is its mesoform.

Senna also contains another glucoside kaempferin, sterols, mucilage, calcium oxalate and resin (1). Other constituents include cathartic acid, camphene, sennacrol and senna-picrin(2).
Senna is included in the essential drugs list (EDL) of the world health organization (WHO) (3), and it is grown widely in many parts of our country Yemen where it is used by some people as a laxative due to its low cost.

In Islamic traditional medicine senna was considered as a general remedy for many diseases they include: constipation, gout, hemorrhoids, arthritis, sciatica, headache and back pain. And externally it was mentioned as a remedy for wounds, pruritus, scabies and hair loss (2,4).In the modern medicine senna glycosides preparation is used only as a laxative, and it is classified as irritant or stimulant laxative that is absorbed from the small intestine and excreted into the colon, where peristalsis is stimulated. And because of that it has a slow onset of action: 6-8 hours (5, 6, 7). Senna may lead to a reduction in whole-gut transit-time (8), and therefore may decrease the absorption of drugs (9).Senna is considered among the drugs that are compatible with breastfeeding (10), where only 0.3% of the drug taken by the mother is transmitted to the infant (11). However ingestion of senna-containing laxatives in young children is not recommended since it may potentially cause severe diaper rash, blisters, and skin sloughing (12). After absorption, the active ingredients of senna are transformed mainly to their corresponding glucuronide and sulfate derivatives, which appear in urine and bile (13).

2. Aim of the work:

The aim of this research is to study the effect of senna leaves on the fasting blood sugar (FBS) in mild diabetic male Yemeni patients. I selected senna due to the many benefits mentioned for it in the traditional old medicine; since there is a documented saying by the prophet Mohammed (peace and praying to be upon him) stating that senna may bear remedy for many diseases (4) and since it is laxatives, so it may cause water, electrolytes and carbohydrates depletion (8), therefore it is expected to lower the blood sugar. Fenugreek is used in our study because currently it is a well-known hypoglycemic herb (1).

3. Materials and Methods:

Twenty individuals were selected for this study according to the following criteria:

- They are all male Yemenis.
- Their age is between 35-55 years.
- They have fasting blood sugar between 130 and 150 mg /100 ml.
- They haven't any other health problems.
- They are not using any drugs.
- They are non-smokers nor do they chew khat.
- The quantity and quality of diet are fixed as possible for all the individuals during the study.

The trials were conducted as follows:

- In the first trial each volunteer received two placebo tablets at 8 am daily for 10 days.
- In the second trial each volunteer received 6 grams of fenugreek seeds (14) soaked in water at 8 am daily for 10 days.
- In the third trial each volunteer received a macerate of 200 mg of the senna leaves (14) daily for 10 days.
- A washout period of two weeks was kept between each two successive trials.
- The fasting blood sugar was measured for all the volunteers before and after each trial using the glucose oxidase method (Trinder's method) (15).

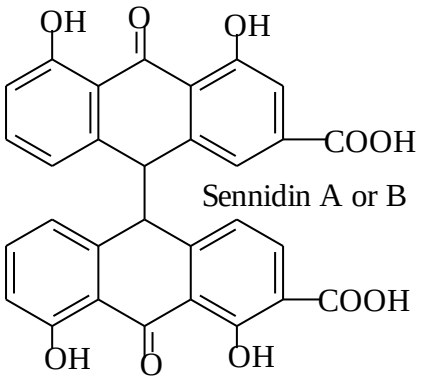
- Principle of Trinder's method: Glucose oxidase promotes the oxidation of glucose (□-ring form) to gluconic acid with the production of equivalent amount of hydrogen peroxide. In the presence of peroxidase enzyme, oxygen from the peroxide can be transferred to a suitable acceptor to give a color end product.
- The kit used was from Human – Germany

4. Results:

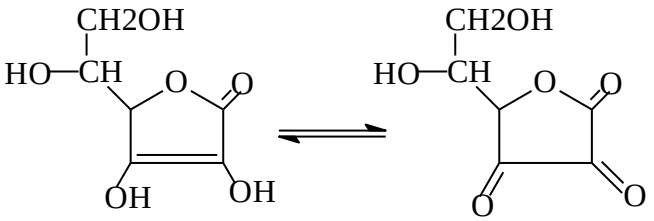
The attached figure and table clearly describe the results. The results were analyzed using the paired-samples T test method of the SPSS 11 program, and they were considered significant when the p value is less than 0.05. The results showed that senna leaves significantly lowered the mean fasting blood sugar of the diabetic patients by 14.3%, and fenugreek seeds also significantly lowered the mean fasting blood sugar of the diabetic patients by 12%. Placebo tablets increased this parameter slightly; however this increase is statistically insignificant. Finally there is no significant difference between the hypoglycemic effect of senna and fenugreek.

5. Discussion:

No doubt that senna speeds gastrointestinal motility and inhibits the absorption of water, electrolytes and carbohydrates, where it causes their loss in the feces (8), Carbohydrates depletion may lower blood sugar, but this effect may not be the only mechanism by which senna lowers the blood sugar since the hypoglycemic fenugreek is not classified as laxative, so other mechanisms may be considered. Senna contains the glycosides sennoside A, B, C, D and others, these glycosides when hydrolyzed yield aglycones such as sennidin A and B. These aglycones do not have structural similarity to the known oral hypoglycemic drugs e.g. sulfonylureas or biguanides, rather they contain hydroxyl alkenes groups which may act as antioxidants. Hydroxyl alkenes groups are the active parts of the well-known antioxidant compounds such as ascorbic acid and tocopherol(16). sennidin A and B, ascorbic acid and tocopherol have the following chemical structures:

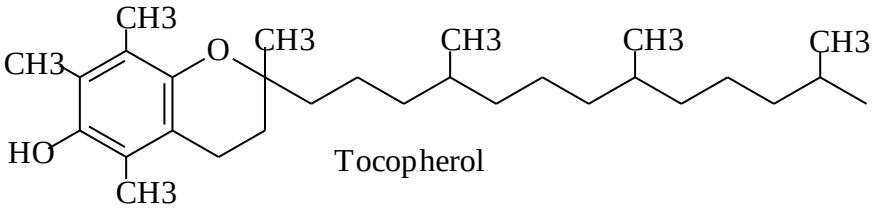


Sennidin A or B



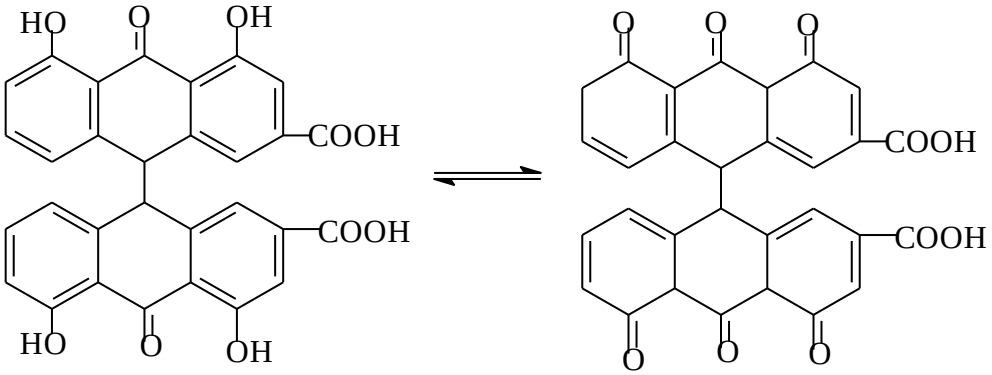
Ascorbic acid

Reduced form oxidized form



Tocopherol

Diabetes have well documented defect in antioxidant protection, and for this reason diabetes mellitus is a suitable disease for antioxidant supplementation. Antioxidants like ascorbic acid and tocopherols inhibit glucose auto oxidation and inhibit glycation of serum proteins, therefore antioxidant therapy seems to be more promising. (17). The aglycones of senna glycosides: sennidin A and B may act probably as vitamin C, though theoretically they may be more effective because of the more active sites (hydroxyl alkenes) that are available in their chemical structures. The possible reaction of sennidin A and B as antioxidant may be visualized as follow: (18)



Sennidin A or B reduced form Sennidin A or B oxidized form

Each sennidin A or B molecule contains six hydroxyl groups while vitamin C molecule contains only two hydroxyl groups and therefore either sennidin A or B has antioxidant properties three folds that of vitamin C at least theoretically. Ascorbic acid is a potent inhibitor of lipid peroxidation and regenerates tocopherol, and senna may have similar action. Other possible explanations for the hypoglycemic effect of senna may be due to increasing the excretion of toxic chemical agents and oxidative cytotoxic compounds in the feces or due to reducing intestinal carbohydrate absorption as mentioned in beginning of the discussion, which may contribute to the hypoglycemic action. It is worthy to mention that the standard hypoglycemic herb: fenugreek used in this work contains a non essential amino acid, 4-hydroxy isoleucine, which has been shown to possess insulin stimulating properties both in vivo and in vitro(19).

Conclusion:

According to my findings I can conclude the following:
1.Senna may have a potential use in patients with type II diabetes mellitus.
2. Abdominal cramp is the main drawback for senna.
3. Unlike sulfonylureas hypoglycemic agents, senna is not expected to cause severe hypoglycemia or weight gain.
4. Unlike biguanides, senna is not expected to cause lactic acidosis.

Recommendations for further research:

The following research outlines are recommended:
1. Isolation and studying the hypoglycemic action of the active ingredients of senna for example sennosides A, B, C, and D.
2. The effect of senna on the hemoglobin Ac (Hb_{Ac}).
3. Comparing the hypoglycemic effect of senna with standard sulfonylurea hypoglycemic agent.

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الملخص العربي

السنا نبات ينمو برياً و يزرع في أفريقيا و شبه الجزيرة العربية و الهند، و مذكور في الطب الإسلامي كعلاج للكثير من الأمراض، ففي في الحديث الصحيح (عليكم بالسنا و السنوت فإن فيهما شفاء من كل داء إلا السام). أجريت هذه الدراسة لمعرفة تأثير تناول أوراق السنا على تركيز السكر الصيامي (FBS) في عينة من 20 من مرضى ارتفاع سكر الدم البسيط اليمنيين (FBS=130-150 mg/100ml) اللذين لا يعانون من أي مشاكل صحية أخرى.

تم تنفيذ 3 دراسات سريريه، في التجربة الأولى تناول كل مريض حبتين من حبوب الغفل placebo يومياً لمدة 10 أيام، و في التجربة الثانية تناول كل مريض 6 grams يومياً من بذور الحلبة (مخفض سكر دم قياسي) لمدة 10 أيام، و في التجربة الثالثة و الأخيرة تناول كل مريض 0.2 grams من أوراق السنا يومياً بشكل نقبع مغلي و لمدة 10 أيام، و تُرك فاصل زمني مقداره أسبوعين بين كل تجربتين متتاليتين.

، أظهرت النتائج أن أوراق السنا خفضت تركيز سكر الدم الصيامي بنسبة 14.3%، و خفضت بذور الحلبة تركيز سكر الدم الصيامي بنسبة 12%، بينما لم تغير حبوب الغفل تركيز سكر الدم الصيامي بصورة ذات دلالة إحصائية.

نستنتج من هذه الدراسة أن تزاول أوراق السنا ربما يكون له تأثير مفيد في علاج مرض ارتفاع تركيز سكر الدم البسيط.

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ORIGINAL ARTICLE

Seroprevalence of toxoplasmosis among Schizophrenic patients

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Abstract:

Toxoplasma has emerged as an interesting candidate as a possible cause of some cases of schizophrenia. Schizophrenia is a serious neuropsychiatry disease of unknown cause We investigated the Seroprevalence rate for anti *Toxoplasma* IgG and IgM antibodies by Eliza in 96 schizophrenic and 96 healthy Individuals(control). The seropositivity rate for antitoxoplasma IgG antibodies among schizophrenic patients was (53%) significantly higher than healthy individuals (23%). The seropositivity rate of IgM antibodies was (2%) among schizophrenic IgG positive patients. The difference in the prevalence of antitoxoplasma antibodies titer was found statistically higher among individuals who live with house cats (59%) than those without (20%). Thus, there is casual relationship might be existed between *Toxoplasmosis* and the etiology of schizophrenia.

1. Introduction:

Infection with the intracellular parasite *Toxoplasma gondii* causes serious public health problems *Toxoplasmosis* in human is usually asymptomatic or flu like symptoms, it can cause abortion and still births after primary infection in pregnant women, the parasite forms cysts preferentially in the brain and establish chronic infection, (1). A variety of brain cells including astrocytes and neurons can be infected, it is proposed that neurotropic cysts of toxoplasma exert an effect on animal behavior, either directly or via release of metabolic products. Long standing infection in humans has been linked to cerebral tumour formation and personality shift (2).

Toxoplasma gondii is of special interest because of affinity to brain tissue and its capacity for long term infection starting in its known early life. Perhaps of great interest is the proposal that chronic toxoplasmosis can exert an effect on human personality (3). Recent epidemiological studies indicate that infectious agents my contribute to some cases of schizophrenia. In animals, infection with *Toxoplasma gondii* can alter behavior and neurotransmitter function, an association between *Toxoplasma* infections and schizophrenia is consistent with animal models indicating persistent behavioral changes in *Toxoplasma* infected animals (4). *Toxoplasma* organisms have also been shown to impair learning and memory in experimental mice, and to produce behavioral changes in both mice and rats. Of special interest are studies showing that Toxoplasma –infected rat's become less neophobic, leading to the diminution of their natural aversion to the odor of cats (5, 6, 7).

In human, infection with *Toxoplasma gondii* can produce symptoms similar to those displayed by persons with schizophrenia, Schizophrenia is a progressive neuropsychiatry disease of uncertain cause that approximately affects 1% of the adult population in USA and Europe (8). There is a clear inheritable component, but familial incidence is sporadic and schizophrenia does occur in families with no history of the disease.

Schizophrenia is widely believed to have a neurobiological basis. The most notable theory is the dopamine hypothesis, which posits that schizophrenia is due to hyperactivity in brain dopaminergic pathways. Some researchers have found an association between some cases of schizophrenia and *toxoplasmosis, Toxoplasmosis* can lie dormant in the nervous **sys**tem and migrate to the brain over many years. Some cases of acute toxoplasmosis in adults are associated with psychiatric symptoms such as delusions and hallucinations. A review of 114 cases acquired toxoplasmosis noted the psychiatric disturbances were very frequent in 24 of the case patient (9) additional studies have documented that persons with serologic evidence of toxoplasmosis have evidence of psychiatric changes in the absence of a history of clinically apparent *toxoplasma* infection. The current study was carried out in the aim of to investigate a possible association between *Toxoplasma gondii* and schizophrenia.

2. Materials and Methods:

Patients and Sera

Serum samples were obtained from 96 patients (45 females and 51 males admitted to the psychotic unite of the Evn Sina teaching hospital in Mosul, in whom schizophrenia was diagnosed according to DSM 4TR criteria (diagnostic and statistical manual of the American association of psychiatrist 4th edition text revised) their age ranged between 20 to 50 years, (the mean age was 38.25 -+ 9.45) In whom clinical examination and laboratory investigations was carried out, sixteen patients were recently diagnosed As schizophrenic (acute stage) , the other 80 patients were well known have schizophrenia but admitted due to their relapse, all patients were under antipsychotic therapy.

A matched age and sex group consisted of 96 healthy volunteers was chosen who had no history of schizophrenia were also examined for toxoplasmosis as a control. The patient and controls were living in the urban and rural region in and near Mosul city.

Serological Technique

Five millimeters of blood was under taken from 96 schizophrenic patients and 96 controls under sterile conditions. Blood samples were then centrifuged at 1000 r.p.m., and the sera were stored at -20 C until; the analysis. The technique used was the ELISA technique for Toxoplasmosis. A commercial ELISA kit (BioCheck, Inc.323 Vintage Park Dr. Foster City, CA 84404) was used for detection of anti-Toxoplasma gondii IgG and IgM antibodies. The technique was performed according to the manufacturer's instructions.

3. Results:

The results of this study are summarized in the Table. Out of the 96 patients with schizophrenia, 55 (53%) had a positive toxoplasmosis (IgG) antibody titer, Among the normal (control) group 22 out of 96 healthy individual (23%) had a positive(IgG) antibody titer. The difference is statistically significant at the level of p 0.05. IgM titers was positive for only (2%) of the schizophrenic patients and it was negative in the healthy control groups by ELISA. The seropositivity rate to *toxoplasma gondii* in patients with schizophrenia was found to be increased according to their age, a higher percentages of positive results were obtained in the second (32%) and third decade(38%) of age groups respectively, but there is no significant difference in antibody titer between the two group concerning their residence, occupation and socioeconomic status. The present study showed that 57(59%) of the schizophrenic patients versus 19 (20%) of the matched controllers had owned house cat in childhoods p=0.02. The data in this study showed no significant difference in the Seroprevalence of antitoxoplasma antibodies between males and females.

Table1. The Seroprevalence of antitoxoplasma IgG antibody among Schizophrenic patients and controls

Groups	Number examined	Seropositive IgG N0 (%)	Cat owners N0 (%)
Schizophreni patients	96	55(53)	57(59)
Control	96	22(23)	19(20)

4. Discussion:

Up to our knowledge, this is the first study trying to investigate the correlation of an elevated IgG anti toxoplasma antibodies among schizophrenic patients in this area.
Toxoplasmosis commonly occurs in adults, usually as a mild or asymptomatic form, the individual response to *Toxoplasma* infection is determined by immune status. Therefore, the method of choice in the diagnosis is by the detection of the specific antibodies in patient's serum (10).The serological data of this study indicates that there was clear association between toxoplasma infection and schizophrenia. We found that the prevalence of antibodies to *Toxoplasma gondii* in schizophrenic individuals is significantly higher than the prevalence of antibodies in control non schizophrenic individuals; these are in consistent with other studies linking Toxoplasmosis to schizophrenia (11, 12).

A study of maternal sera of women who gave birth to offspring who developed later schizophrenia spectrum disorders and a study of new born sera of individuals who later developed schizophrenia, both reported increased antibodies to *Toxoplasma gondii* cases versus controls (12). In humans, *Toxoplasma* is an important cause of abortion and still births after primary infection in pregnant women. The organism can also cross the placenta and infect fetus. Some sequel of congenital toxoplasmosis are not apparent until the second or third decade of life. Hydrocephalus (9) increases ventricular size (13) and cognitive impairment (14) have been noted in some persons with schizophrenia and other forms of psychosis (8).

Some cases of acute toxoplasmosis in adults are associated with psychiatric symptoms such as delusion and hallucinations, congenital toxoplasmosis in the new born go undiagnosed, thereby predisposing to the occurrence of untoward sequel of the infection including decreased vision or blindness, decreased hearing or deafness, and mental and psychomotor retardation (15). These findings in the current study on schizophrenia related toxoplasmosis factors, particularly with the detected increase in seroprevalence of toxoplasmosis with age are in consistent with published reports by others (16, 17). In recent years, serological studies on patients with schizophrenia have been carried out showing that anti *Toxoplasma* antibodies were higher in patients than in the selected control groups (18, 19). Elevated anti *Toxoplasma gondii* antibody have been reported in patients with first onset schizophrenia (20, 21) suggesting an involvement of this parasite in the etiology of schizophrenia, Therefore the reactivation of chronic infection with the parasite (proliferation of tachyzoites caused by cyst rupture) in the brain might involved in the onset of the disease.

Neuropathologically, studies of *Toxoplasma gondii* in cell culture have shown that glial cells, especially astrocytes, are selectively affected (22, 23).Postmortems studies of schizophrenic brains have also reported many glial abnormalities (22). Including decreased numbers of astrocytes(24) similarly, studies in animals with toxoplasmosis have demonstrated that this organism affects levels of dopamine, and other neurotransmitters, which are well known to be affected in persons with schizophrenia. The difference in the prevalence of *Toxoplasma* antibody titer was found to be statistically significant between patients living in homes with cats (59%) and those without (42%) Ch = P 0.05.

Recent studies suggest there is an association between maternal exposure to toxoplasmosis and an increased risk for developing schizophrenia in grow up children, a study of 63 individuals, who developed schizophrenia spectrum disorders, maternal sera obtained during pregnancy showed Increased risk of having IgG antibodies to *Toxoplasma gondii* (25 ,26)

Epidemiologically, two studies have reported that children who were later diagnosed with schizophrenia or other psychosis had had more childhood exposure to cats (27, 28, 29)**.** In one study, (51%) of 165 affected versus 65 (38%) of the 165 matched controls had owned a house cat in childhood. it has been also observed that some individuals who develop adult onset toxoplasmosis exhibits delusions and hallucinations (30).

Schizophrenia is widely believed to be a disease of neurodevelopment, this is consistent with *Toxoplasma gondii* known ability to cause prenatal infections and then remain latent for many years before becoming reactivated, *Toxoplasma gondii* is of special interest because of its known affinity for brain tissue and its capacity for long term infection starting in early life. *Toxoplasma gondii* is neurotropic, with a special affinity for glia (31, 32, 33) now thought to be centrally involved in the schizophrenia disease process. It is also interest that some antipsychotic drugs used to treat schizophrenia have been shown to inhibit the growth of *Toxoplasma gondii* in cell culture (34).

Multiple studies have demonstrated that the brains of persons with schizophrenia show structural and functional changes that these exists even in patients who have never treated with antipsychotic medications (24). Establishing the role of *Toxoplasma gondii* in the etiopathogenesis of schizophrenia might led to new medications for its prevention and treatment**.** Previous studies (35) indicated that the prevalence of antibodies to *Toxoplasma gondii* is higher in individuals with schizophrenia than in control groups and suggest that infections with toxoplasma may confer a risk for schizophrenia. Our current work extends this finding by investigating the correlates of *Toxoplasma* seropositivity within a schizophrenic individuals. A additional comprehensive studies are required to investigate the possible link between *Toxoplasma gondii* infections and other symptoms and clinical course of schizophrenia,. A positive relationship between Toxoplasmosis and schizophrenia may led to new approaches for the treatment of these disease.

5. **Conclusion:**

There is casual relationship might be existed between *Toxoplasmosis* and the etiology of schizophrenia.

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ORIGINAL ARTICLE

Conversion rate of laparoscopic to open cholecystectomy

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Abstract:

Purpose: to audit the conversion rate and identify the conversion reasons necessitating Yemeni laparoscopists to convert laparoscopic cholecystectomy to open procedure.
Patients and Method: The data of patients who were attempted to laparoscopic cholecystectomy (n =709) between 2001 and 2005 were retrospectively analyzed in relation to conversion rate and reasons influencing the conversion to open surgery. The study included 648 women and 61 men with mean age of 38 years. (range 14 to 86 years). Cholecystectomies that were not primarily subjected to laparoscopic cholecystectomy from the beginning were excluded. **Result:** Laparoscopic cholecystectomy was successfully performed in 650 patients with completion rate of 91.7%. Conversion to open cholecystectomy was carried out in 59 patients with conversion rate of 8.3% of all attempted laparoscopic cholecystectomies. Various conversion reasons have been identified. Extensive adhesions were the most common reason for conversion (n =20, 33.9%). **Conclusion:** Our descriptive study has shown that Yemeni laparoscopists still have conversion rate as high as that being reported in early years of laparoscopic cholecystectomy. The most common reason for conversion to an open procedure was dense and extensive adhesions. The absence of strict operating system and the shortage of experience in laparoscopic surgery increased the rate of conversion.
Keywords: Laparoscopic cholecystectomy – conversion rate.

1. Introduction:

Laparoscopic cholecystectomy (LC) has become the standard operative procedure for the treatment of gallbladder diseases and almost replaced open cholecystectomy in the treatment of gallbladder diseases (1, 2). Today more than 90% of cholecystectomies are performed laparoscopically for its well known advantages such as decreased postoperative pain and ileus, short hospital stay, earlier return to normal activity, earlier oral intake and improve cosmetic result over open cholecystectomy (1, 3). After 20 years of learning and understanding the laparoscopic technique and increasing surgeons' experience, the conversion rate has been decreased from 2 - 22% to approximately 1 - 6% of attempted laparoscopic cholecystectomies (1, 2, ,3). Furthermore most of previous contraindications such as acute cholecystitis, empyema, obesity and previous abdominal surgery are no longer absolute (4, 5). The aim of our study is to audit the conversion rate and to identify the reasons of conversion of laparoscopic cholecystectomy to open procedure in our department between 2001 and 2005.

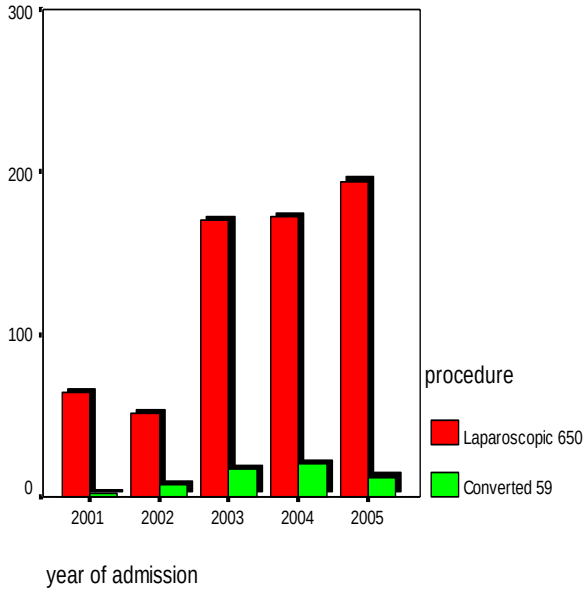
2. Patients and Method:

Data of 709 consecutive patients who underwent LC between January 2001 and December 2005 were retrospectively analyzed in relation to the conversion rate and reasons of conversion from laparoscopic to open cholecystectomy. Patients having absolute contraindications to LC like cardiopulmonary diseases, medically unfit patients as well as patients subjected primarily from the beginning to open cholecystectomy were not included. Also patients with history of jaundice elevated liver function tests and stone in the common bile duct or its dilatation were excluded. Cases with biliary colic due to gallbladder stones and both acute and chronic cholecystitis were included. Seven hundred nine patients were included, 648 of which were women and 61 were men with mean age of 38 years (range 14 – 86 years).

3. Results:

From January 2001 to December 2005 laparoscopic cholecystectomy was attempted in 709 patients at Kuwait University hospital in Sana'a. There were 648 women and 61 men with mean age of 38 years (Range 14 to 86 years). Conversion from laparoscopic to open surgery was required in 59 patients (50 women and 9 men) with 8.3% of conversion rate. A total of 554 cases (78.1%) were performed by consultant surgeons, and 48 patients needed conversion (8.7%) while 155 cases (21.9%) were performed by juniors, 11 patients needed conversion (7%). The annual incidence of conversion to open surgery is shown in Fig. I.

Fig.I:The annual conversions to open procedure



The conversion rates as seen in the figure remained relatively stable throughout the study period except slight decrease in the last year (2005). All converted cases (n=59 with 8.3% conversion rate) were considered as difficult cases except five cases. Two of the five cases were converted because of stone spillage into abdominal cavity. One patient was converted due to fault in gas insufflator, which suddenly stopped working, and two were converted on the request of anesthetist because of hypertension in one patient while in the other one because of decreased O2 saturation. Dense and extensive adhesions prohibiting laparoscopic dissection in Calot's triangle were the most common reason for conversion (n= 20; 33.9% of converted cases).The reasons of conversion in our series are detailed in table1.

Intraoperative complications during LC have occurred in 67 patients (9.4%) as shown in table 2. Fifty three of 67 patients had minor complications that did not need conversion. The conversion due to operative complications was only required in 9 patients with conversion rate of 15.3 % of all converted cases. Complications in twelve patients were assigned as major complications (2 CBD and one CHD injury, one perforation of the duodenum and 8 bleeding, three of which were uncontrolled and required conversion). Two bile ducts injuries have been identified during operation and were converted. The third case was diagnosed one week after operation and required laparotomy and T-tube for 3 months. Out of the 8 bleeding, 3 cases were uncontrolled and required conversion, while the other five cases have been laparoscopically dealt with. Two cases were converted due to stones spillage. Unfortunately, the perforation of the duodenum has been identified as late as one week after LC. It required reoperation, closure and drainage. Three of nine complications were caused by consultant surgeons (33.3%) while 6 cases were caused by juniors (66.7%). Distribution of surgeons and procedures is shown in table 3.

Table1. Reasons for conversion, *n* =59

No.	Reasons for conversion	Patients	%
1.	Dense and extensive adhesions with unclear anatomy	20	33.9
2.	Friable, edematous tissue in Calot's triangle	9	15.3
3.	Small contracted GB with thickened wall	7	11.9
4.	Empyema	4	6.8
5.	Short cystic duct	3	5
6.	Common biliary ducts injury	3	5
7.	Uncontrolled Bleeding	3	5
8.	Stones spillage	2	3,4
9.	Duodenal injury	1	1.7
10	Absent GB	1	1.7
11	Cholecysto-duodenal fistula	1	1.7
12	Technical -insufflator stopped working	1	1.7
13	On the request of anesthetist	2	3.4
14.	The cause was not mentioned	2	3,4
	T o t al	59	100.0%

Table2. Operative complications, *n* =67

No.	Complications	Patients n= 67(%)	Conversions n= 9(%)
1.	GB tearing with bile leakage	53 (79.1%)	none
2.	bleeding	8 (11.9%)	3 (37.5)
3.	extrahepatic ducts injury	3 (4.5%)	3 (100.0)
4.	Stones spillage	2 (3.0%)	2 (100.0)
5.	perforation of the duodenum	1 (1.5%)	1 (100.0)

Table3. Relation between operators, procedures and conversion

Operator			procedure		Total (%)
			laparoscopic cholecystectomy	Converted (%)	
	senior	number	506	48 (8.7%)	554 (78,1%)
	junior	number	144	11 (7.0%)	155 (21.9%)
Total		number	650	59 (8.3%)	709 (100 %)

4. Discussion:

Open cholecystectomy has being a gold standard for the treatment of gallbladder diseases for more than 100 years since Carel Johann Langenbuch has performed first open cholecystectomy in 1882 (5). First laparoscopic cholecystectomy in human has been performed in 1987 by Dr. Philip Mouret to become the new gold standard and almost replaced open cholecystectomy for the treatment of gallbladder disease (5). In Yemen, it is believed that first laparoscopic cholecystectomy was performed in Dar Al-Shefa private hospital by Dr.Yahia Al-Basha in 1992. In our university hospital we have started with laparoscopic surgery in 2001.

In the literatures the conversion to open procedure was required in 2-15% of patients (1, 3, 4, 6-10). With the passage of time the experience has grown, the laparoscopic technique has been understood and thus the conversion rate has reached a remarkably low level of 1-6% (2, 4). In our series, the conversion to open cholecystectomy was required in 59 patients with conversion rate of 8.3%. This rate is comparable to the results of most international studies published in early years of LC (2-15%) (1, 3, 5-10), but remains higher than those results reported recently in last five years (1-6%) (2, 5). This may be due to differences in institutional and individual practice including experience of operating team. We attribute our relative high conversion rate to the shortage of our experience in laparoscopic surgery. The apparent low conversions in first two years (2001 and 2002) did not actually reflect the true conversion rate because most of cholecystectomies at that time were subjected to conventional open cholecystectomy due to shortage of laparoscopist surgeons Fig. I.

Another point affecting conversion is: how often does the surgeon practice his or/her laparoscopic surgery? Comparing our total number of LCs over five years with other centers, we were surprised that we have severe shortage of daily practice in laparoscopic surgery. In average, we have performed about 170 LCs per year (by 17 surgeons: 11 seniors and 6 practioners). That means 10 laparoscopic procedures for each surgeon per year. The main reason for conversion in our series was dense and extensive adhesions precluding the clear vision in Calot's triangle making dissection without risk very difficult. Out of 59 converted cases, 20 cases were converted due to excessive adhesions with conversion rate of 33.9 %.

This level of conversion could be comparable with the results reported by Jeremy M. et al (8) and A. Alponat et al (9) who have reported conversion rate due to adhesions at 34.8% and 40% respectively. The second common reason for conversion in our series was edematous friable tissue in Calot's triangle signifying acute cholecystitis. Nine patients with signs of acute cholecystitis were converted with conversion rate of 15.3%, which is similar to that result reported by M. Rosen(3) that reported conversion rate of 14%, but lower than other series(1,8,9 , 10). Nuri A. Kama et al (1) reported much higher conversion rate at 50%, while Jemery et al (8) as well as Alponat et al (9) have reported conversion rate at 32%. We can not attribute our apparent lower conversion rate of cases with acute cholecystitis to better experience of our operating team, but to old policy we fellow during "so called learning phase" of LC (first five years). All cases with acute cholecystitis at that phase were indicated either to primarily open cholecystectomy from the beginning or to conservative treatment till inflammation subsides.

Small fibrotic contracted GB was the third common reason for conversion in our series. Seven cases of contracted GB were converted with conversion rate at 11.9 % of all converted cases. This is consistent with those reported in the literature (2, 11). Recurrent episodes of acute cholecystitis in association with mechanical irritation of the wall of GB by stones inevitably result in thickening and fibrosis of the gallbladder making grasping and dissection of GB very difficult (1, 6, 9, 11). Another reason for conversion was empyema of the gallbladder. All four cases with empyema were converted to comprise conversion rate at 100% of cases with empyema. This conversion rate is the highest among several studies (2, 12). Singh K. et al (2) and Malik et al (12) have reported higher conversion rates at 12.2% and 19.4% respectively. Conversion of all cases with empyema in our study was attributed to old skeptic opinion considering empyema as absolute contraindication to laparoscopic surgery especially in the early years of LC.

In this study, operative complications were reason for conversion in 9 patients with conversion rate at 15.3% of all converted cases. This rate is higher than that reported by Rosen et al (3) and Jeremy et al (8) - at 8.4% and 9.8% respectively. Higher conversion rate due to intraoperative complications has been reported by Alponat et al (9) and Salleh Ibrahim et al (13) at 17.3% and 29% respectively. We believe that this high rate is due to the shortage in the institutional and individual practice. Urgent conversions due to uncontrolled bleeding or injury of extrahepatic biliary ducts might be accepted, but is no longer due to stones spillage. This high rate of conversion as well as high rate in empyema cases indicates the shortage in experience of our operating team.

In order to improve our performance and decrease unneeded conversions, we strongly agree with the suggestion presented by Swee H.L.et al (14) that the instituting training programme for junior surgeons with supervision by consultant laparoscopist is very important. They have suggested performance of 15 cases under consultant supervision before operating alone without supervision. The resident could familiarize with anatomy in porta hepatis and Calot's triangle as well as with laparoscopic technique (14).

Although we believe like others (2, 3, 9), that conversion to an open procedure should not be regarded as a failure or complication but as a prudent and conscious attempt to avoid catastrophic complications, we emphasize that the experience of operating team and precise surgical technique as well as optimal indication timing are important factors to achieve successful completion as well as a low complication rate. This goal could be achieved by operating in specialized centre with the same team and instituting training programme for the junior surgeons with supervision by consultant laparoscopist.

6. Conclusion:

the present study has shown that we still have higher conversion rate comparing with the literature in last five years. While many reasons lead to conversion and influence conversion rate, the most important reason for conversion was dense and extensive adhesions. There was number of unneeded conversions that might have been avoided if they had been managed by well experienced team. This may indicate the shortage of institutional and individual practice as well as experience of operating surgeons in our hospital.
Further study analyzing preoperative factors that might predict conversion preoperatively is strongly advised.

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ORIGINAL ARTICLE

PRESERVATION OF SPLEEN IN HYDATID CYSTIC DISEASE WITHOUT INTRACAVATORY INJECTION OF SCOLECIDAL AGENTS

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Abstract:

Objective: The aim is to determine the outcome of spleen sparing procedure in treating splenic hydatid cystic disease without intracavitary injection of scolecidal agent .**Design:** Case series study. Patients and method : 25 patients with splenic hydatid cystic disease , underwent splenic preservation operation without use of scolecidal agent during operation .**Results** : follow up of all patients after 3 years showed that obliteration of the cystic cavity was complete and the spleen was retained successfully with smooth post-operative course .**Conclusion :** preservation of spleen in splenic hydatid cystic disease is less invasive , safe , without problems of scolecidal agent injection and with good encouraging results.

Key words: spleen, hydatid disease, preservation of spleen, scolecidal agent, edocystectomy.

1. Introduction:

Hydatid cystic disease has been recognized since ancient time and has a worldwide distribution. Berlot in 1790 is accredited with the first description of a splenic hydatid cyst as an autopsy finding (1) .Hydatid disease of the spleen is extremely rare even in endemic areas (0.5- 4%) of all cases of echinococcosis(2,3) .

The infestation of the spleen usually takes place by arterial route after the parasite has passed through the hepatic and pulmonary filters. The retrograde venous route which avoids the liver and lungs is also suggested (4).Until recently the gold standard treatment for splenic hydatidosis was splenectomy. Since 1980 there has been a trend towards splenic conservation to avoid overwhelming post splenectomy infection (OPSI). Children are more prone to OPSI, so preservation should always be tried especially in children [5] to prevent OPSI (with mortality more than 50%) (6). Incidence is up to 60%. In this study splenic preservation operation was used without operative intracavitary injection of scolecidal agents .To date, to our knowledge, there is no ideal scolecidal agent that is both active and safe. The killing action of the scolecidal agent observed in vitro may be hampered in vivo by the instability of the substance, an unpredictable dilution of the hydatid fluid and the difficulties in the penetration of the daughter cyst (7).

2. Materials and Methods:

Twenty five cases of splenic hydatid cyst operated on over a period of 10 years , from 1994- 2003 at Al-Salam teaching hospital and Al-Zahrawi private hospital in Mosul .Male ten cases , female fifteen cases , their age ranged between 12-66 years . Size of the cyst varies from 5 -15 cm. Number of the cyst varies from 1- 5 cysts/spleen. In 20 patients (80%) there were associated hepatic cysts. All of the cases were diagnosed by ultrasound only. Chest x-ray was taken pre-operatively to exclude pulmonary hydatid cyst. Surgical approach was through left paramedian incision for pure hydatid cyst of spleen and via transverse incision for hydatid cyst of both liver and spleen.

Good packing around the cyst was done, without intracavitory injection of scolecidal agent, then cyst puncture created using special catheter on a needle (A.V.fistula set 166*1" (35mm) manufactured by Kawasumi Laboratories Inc. Tokyo, Japan) attached to suction apparatus, after near complete decompression of the cyst, its wall incised to remove the endocyst and any daughter cysts with good inspection to interior of the cyst. The cavity either plicated by stiches as in small cyst or cyst projecting from the surface or drained by using tube drain as in large cyst deeply embedded in the spleen and in case of infected cysts . Anaphylactic shock during operation was not noticed in all cases.

3. Results:

Follow up of all patients over a period of three years by ultrasound showed that obliteration of the cavity was complete and the spleen was retained successfully, with short hospital stay.

Post-operatively two patients developed recollection (false recurrence 8%) treated by drainage only with uneventful convalescence. Three case of true recurrence (12%) and all in multiple cysts patients. Chest infection developed in three patients (12%). Wound infection at the site of drain developed in two cases (8%). No patients developed immune reaction, bleeding or thrombo-embolic complications (Table 1).

Table I. Post-operative complications

Type of complication	No. of patients	Percentage
Chest infection	3	12%
Wound infection	2	8%
Bleeding, thrombo-embolic complication.	0	0%
Immune reaction	0	0%
False recurrence	2	8%
True recurrence	3	12%

4. Discussion:

Surgery remains the main treatment modality (8). Radical treatment is splenectomy, but the conservative operation advocated in this study was removal of the cyst only without splenectomy. All cases had smooth post-operative course with few local complications and short hospital stay (2 -5 days). This alternative procedure is particularly useful in difficult cases either due to adhesion of the cyst with adjacent structures like pancreas, stomach, colon, or diaphragm, or in case of multiple splenic cyst which is difficult to mobilize for splenectomy.

Radical surgery (splenectomy) has the advantage of complete cure because the organ itself is removed , but the risk is higher and includes , injury to adjacent structures as mentioned before , large raw area with more bleeding than in conservative approach and post- splenectomy infection (especially in children with higher mortality rate up to 50% (5,6).After splenectomy the primary antibody response is decreased and the secondary response is abnormal in that there is an impairment of the normal switching from IgM to IgG antibody subtypes . The spleen influence opsinization of pnemococci in non-immune individuals and is involved in the function of the alternative pathway of complement activation.

It also produce non-specific effectors of the immune response , such as the tetrapeptide tuftsin , opsinizes particulate matter , and as such facilitate phagocytic activity ,which is virtually absent in the blood of asplenic patient and lead to overwhelming post splenectomy infection(9) .

Follow up of all cases were done by ultrasound examination for three years with complete collapse of the cyst cavity , but in two cases (8%) there were recollection after three and six months respectively (false recurrence) and were treated by drainage operation alone with uneventful convalescence .

Post-operatively recurrence was noticed in patient who presented with suggestive symptoms or signs with an ultrasound evidence showing some growth of a cyst at repeated imaging observed from a minimum 30 months post-operatively (true recurrence), which were noticed in three patients (12%) . Patient presented with suggestion of recurrence during the first year pos-operatively were considered as false recurrence (10). Preservation of spleen for hydatid cystic disease were performed previously but with intracavitary injection of scolecidal agent as absolute alcohol (16) or povidine iodine (3), but in this study with this limited cases no scolecidal agents were used because of their side effects, complications and their poor effect in preventing recurrence outweighs their advantages (11, 12, 13, 14, 15) with the same postoperative result. We believe that is safer to deal with hydatid cyst without injecting them with the currently used scolecidal agents till competent and safe drugs are discovered, provided that the area of the operation field is properly isolated with minimum or no spillage of cyst contents.

No any of the above cases developed anaphylactic reaction (immune reaction) during or after the operation. Post-operatively first twenty patients received Albendazol tablet 10mg/kg body weight /day, three times daily for two months. Last five cases received Tinidazol tablet 2gm/day as single dose for three courses, each course consist of 10 days drug intake followed by 5 days rest.

5. Conclusion:

Splenic preservation operation for splenic hydatid cystic disease is safe, simple, effective and less invasive procedure as compared to radical operation with possible injury to other structures as well as the risk of systemic complications like overwhelming post-splenectomy infection.

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الملخص العربي

الهدف : دراسة حالات اصابةاكياس مائية في الطحال عولجوا جراحيا بدون استئصال الطحال وبدون زرق أدوية قاتلة للطفيلي أثناء العملية الجراحية . **التصميم :** دراسة سلسلة حالات . المرضى وطريقة البحث : اجريت الدراسة على خمسة وعشرون حالة اكياس مائية في الطحال . تمت اجراء عمليات جراحية باستئصال الكيس وبدون استئصال الطحال . تمت مراقبة المرضى بعد العملية بصدد حدوث مضاعفات او رجوع الاكياس .**النتائج :** اظهرت النتائج ان عدم رفع الطحال في حالة اصابتة بالاكياس المائية باتها عملية ليست صعبة وأسهل بكثير من استئصال الطحال والذي بدورة يؤثر على جهاز المناعة وخاصة عند الاطفال مع مضاعفلت اكثر بعد العملية من عدم رفع الطحال .
الاستنتاج : يظهر من هذة الدراسة البسيطة ان عدم استئصال الطحال ليس ضروريا ونكتفي برفع الكيس اذ ان استئصال الطحال ذو مضاعفات اكثر وخاصة عند الاطفال لتاثيرة على جهاز المناعة وزيادة نسبة الاتهاب والوفيات وبدون حقن الأكياس المائية بالمواد القاتلة للطفيلي لتجنب مضاعفات الأدوية القاتلة للطفيلي , وبطبيعة الحال بعد أخذ بنظر الاعتبار كافة الإجراءات الوقائية اللازمة أثناء التداخل الجراحي لمنع تسرب أو انتشار الأكياس المائية في جميع الحالات .
مفتاح الكلمات : الطحال , الأكياس المائية , عدم أستئصال الطحال , رفع الكيس فقط ,الأدوية القاتلة للطفيلي .

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ORIGINAL ARTICLE

INGUINAL HERNIA REPAIR BY DARNING

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Abstract:

Aim & objectives: To find out the early recurrence within one year of open conventional method and, nylon darning repair for inguinal hernia.
Patient &method: This hospital-based study was conduct at Ibn Sina teaching hospital in Mukalla-Yemen during three years from February 2002 to 31 January 2005. We used descriptive analysis to determine all cases of inguinal hernias, which were treated surgically by using darning repair, and to evaluate the use of this method according to type and site of inguinal hernia. **Results:** The sample size used for this study was 120 cases. These cases were distributed according to age groups. Around 2/3 of admitted cases 66.7%, were between 25 and 44 years old. Seventy of operated cases were indirect inguinal hernia, and eighty-five cases were right side inguinal hernia. In postoperative complications, wound infection occurred in four patients. Haematocele was formed in one patient. Only one patient came back with recurrence after one year of operation.
Conclusion: Darning repair has limited post operated complications, low recurrence rates, cheep cost & a represent a good alternative to the (gold standard) Lichtenstein mesh repair for primary inguinal hernia especially in poor countries.

1. Introduction:

Inguinal hernia repair is one of the commonest surgical procedures and is an important training operation for young surgeons. It has technical challenge. There are conflicting reports on the results of hernia repair by trainee surgeons compared with experienced surgeons. The recurrence rate in inguinal hernia surgery performed by expert hernia surgeon or carried out in centers with the special interest in such repair is <2% , but in the hands of average or junior surgeons the reported recurrence rate is as high as 25% (1).

The high incidence of inguinal hernia makes its repair the most frequent procedure in general surgery (2). .In the last few decades many techniques for hernia repair have been published. Currently polypropylene and Dacron mesh are the most satisfactory since they are ready available and become well incorporated by connective tissue (3). Maloney achieved recurrence rates as low as 0.8% with inguinal darning repair (4) Abrahamson was the first to point out the defects that could lead to high recurrence rates in darn repair. His series of >1000 repairs reported in 1995 recorded recurrence rates as low as o.8 % (5). Recently Omer Farooq in 2005 reported 0.6% recurrence rates with darn repair (6). Prolene mesh is not easily available in our field and relatively costly; therefore increase the cost of operation. In this series, we preferred darning repair because is easily available sutured material, has limited reaction and acceptable recurrences rates.

2. Patient& method:

This hospital-based study was conduct at Ibn Sina teaching hospital in Mukalla in Yemen during 3-years period from 1 February 2002 to 31 January 2005. We used descriptive analysis to determine all cases of inguinal hernias, which had been treated surgically by using darn repair, and to evaluate the use of this method according to type and site of inguinal hernia. Difference of proportion between age groups were determined, the p-value was based on Chi square test for goodness of fit considering p-value less than 0.05 to indicate statistical significance. Patient were underwent surgical operation using Malony's darning repair of inguinal hernia by prolene No1.Early post-operative complications especially recurrence rate had reported. Follow up of operative patients was done after 7 days, where skin stitch removed, 1, 2 months and one year later. No patient selection has used for the surgical procedure; patients with bilateral hernias were operated on both sides at same time and all patient received spinal anesthesia.

3. Results:

The maximal sample size used for this study was 120 cases. These cases were distributed according to age groups as shown in table one. The mean age at diagnosis of inguinal hernia was 35 ± 5years, and ranged between 25and 60 years of age. This table shows that around 2/3 of admitted cases 66.7% of cases were diagnosis at the age between 25and 44 years old. Chi squared goodness of fit test was 26.6 under degree of freedom 3 the p-value was 0.001(significant). Null hypothesis Ho was rejected.

This result indicated that the observed values were not in agreement with expected values. In other words, not all age groups were equal and the incidence of inguinal hernia was larger among younger patients (25-34) than older (Table 1).

Table 1: Distribution of inguinal hernia according to age groups

Age group	Observed frequency of cases (%)	Expected frequency
25-34	50 (41.7)	30
35-44	30 (25)	30
45-54	30 (25)	30
> 55	10 (8.3)	30
Total	120 (100)	120

Table 2 shows cross tabulation of inguinal hernia cases according to two variables, site and type of hernia that has been operated using darning repair. Seventy of operated cases were indirect hernia, while eighty-five of operated cases were at right side. Five of operated cases were bilateral and direct. Using Chi square test for comparison between two proportions was 0.86 under degree of freedom of one. P-value was >0.05 (non-significant). The interpretation of this result is that there was no association between site and type of hernia among those cases of hernia, which has been operated using daring repair.

Table 2: Distribution of inguinal hernia cases in contingency for type and site

Side Type	Rt. Side	Lf. Side	Total
Direct hernia	35	20	55
Indirect hernia	50	20	70
Total	85	40	125

One patient of bilateral inguinal hernia exhibited recurrence on the right side after approximately one-year .which re-operated and placing prolene mesh. Four patients had superficial skin infection (SSI) that subsides within 5 days by IV antibiotic and dressing. Only one patient developed haematocele, which was drained on the third post-operative day, with overall complications was 4.8% as shown on table 3. All patients were discharged on the 4^{th} post-operative day except the above mention complications which were discharged on the end of first week with median hospital stay of 3 days.

Table 3: postoperative complications

Complications	No	%
recurrence	1	0.8
SSI	4	3.2
Haematocele	1	0.8
Total	6	4.8

4. Discussion:

Inguinal hernia repair is one of the most common general surgical operations with a rate of 10 per 10,000 in the United Kingdom each year (9). The science of groin herniorrhaphy has evolved greatly over the last twenty years (7). Inguinal hernia surgery has changed dramatically over the past 10 years. One of the principle aims for hernia surgery in the modern era has been to lower the recurrence rate (12). There have been many developments by surgeons such as Halsted, McVay, Maloney and Shouldice since Bassini"s pioneering work in 1887.Their aim to teach the principles of repair so that the "average" surgeon may attain acceptable recurrence rates. It appears that general surgeons may have recurrence rates of 5-10% while more dedicated surgeons have rates of 1-2%. The challenge is for the general surgeons to attain rates of <1-2% and the surgeon must choose the repair he/she is most comfortable with (7). However recurrence of hernia has been reported to occur in 15% or more cases(10). The primary outcome parameter after inguinal hernia repair has usually been the risk of recurrence and re-operation (11). Open inguinal hernia repair with a nylon darn technique was equivalent to polypropylene mesh with respect to the early measure of postoperative outcome and recurrence at one year (8).

In our study, the recurrence rate was 0.8% this happen in old patient, which has bilateral and recurrent right inguinal hernia, which was replaced by mesh. Therefore, the hernia in old age group special the recurrent type is recommended to be repaired by prolene mesh while the primary to be repaired by darning method. Which has acceptable recurrent rate, with less tension on suture line and it reduce the cost incurred in the use of the mesh. However, comparable outcome achieved with the darning procedure it costs about half that of mesh repair. This cost effective aspect of the darn, places it at a more favorable position, and cost play important role when works in developing country with limited income. A long-term follow up is desirable and is in progress to judge the efficacy of darning repair technique in terms of recurrence and cost effectiveness.

5. Conclusion:

Darning repair has limited post operated complications, low recurrence rates, cheep cost and represent a good alternative to the (gold standard) Lichtenstein mesh repair for primary inguinal hernia especially in poor countries.

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ORIGINAL ARTICLE

The Use of Electroconvulsive Therapy in the Psychiatric Unit at Ibn Sina Hospital Mosul

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Abstract:

Aim: To evaluate the use of Electroconvulsive therapy (ECT) in the psychiatric unit at Ibn Sina teaching Hospital in Mosul.
Method: A register-based prospective study of the use of ECT in the psychiatric unit in Ibn Sina teaching hospital in Mosul during the period between 1\7\2007 to 31\6\2008, the results were analyzed according to age, gender, marital state, residency, educational levels, diagnosis, and any repeat course of ECT during 12 months, and number of treatments for the course; chi square was used for statistical analysis.
Results: One hundred fifty eight patients treated with one or more courses of ECT. Ninety one patients (58.2%) were men and sixty six (41.8.8%) were women. Ninety five (61.1%) were schizophrenic, 26 (16.5%) were complaining from acute psychosis and 23 (14,5%) had depression, while 13 (8.2%) had manic episode. Fifty eight patients (36.7%) had more than a course of ECT; 53(9%) of them had mania; 56.9% of them were males.
Conclusions: Schizophrenic patients are subjected to ECT more than other diseases specially if they are males from urban areas, this may be due to shortage of other methods of treatment or there might be a tendency to diagnose schizophrenia in psychotic patients.

1. Introduction:

Electroconvulsive therapy (ECT), also known as "shock therapy", is perhaps the most controversial treatment in psychiatry. It involves the brief application of an electric stimulus to produce a generalized (grand mal) seizure, and is believed to work by releasing neurotransmitters in the brain. ECT is generally used in severely depressed patients for whom psychotherapy and medication have not proven effective. It may also be considered when there is an imminent risk of suicide because ECT typically produces much quicker results than antidepressant medications. (1)

The wide use of ECT started in the 1940's for a variety of disorders, including behavior disturbances, and tended to be given in high doses and for long periods of time, which caused a bad reputation especially in the developing countries. (2,3)ECT usually applied under general anesthesia (modified ECT), and muscle relaxant to minimize the somatic effects of the seizure, although in some countries ECT may be used without anesthesia (plane ECT) (4,5). This practice has been recently abolished in largest psychiatric hospital in many countries (6). A major difficulty for developing countries in eliminating plane ECT is a lack of anesthetists (7) and\or facilities. In the United Kingdom in 1980, an estimated 50,000 people received ECT annually, with use declining steadily since then to about 12,000 per annum in 2002 (8). It is still used in nearly all psychiatric hospitals. In a survey of ECT use in the United Kingdom in 2002 71 % of patients were women and 46 % were over 65 years of age. Eighty-one percent had a diagnosis of mood disorder; schizophrenia was the next most common diagnosis (9). Still ECT is the most effective treatment for patients with major affective disorders.(10, 11). It has also been shown to be effective form of treatment for schizophrenia accompanied by catatonia, extreme depression, mania, or other affective components (12 , 13).

2. Patients and methods:

A register-based prospective study. All patients who were admitted to the psychiatric to receive ECT during the period between June 2007 and June 2008 were registered according to their age, gender, marital state, residency, occupations, the diagnosis, and any further course of ECT during the period of the study, taking into account the interval between the two courses. The researcher revised and followed up the records. The diagnosis typically based on international classification of diseases version10 (ICD10) criteria. The diagnosis and the decision of treatment including ECT are taken by a specialist psychiatrist working in the unit (8 specialist psychiatrists). ECT procedure are registered in a specific record and performed by trained psychiatrists (registrar doctor). Data presented as mean and standard deviation and were analyzed using Chi square. Due to shortage in anesthetic drugs and trained anesthetists which is generally the situation in Iraq including Mosul psychiatric unit, usually the patient receives an injection of I.V. 10 mg valium prior to his ECT session (14). The study considers the treatment sessions as plane ECT, because even those who started with modified type, it was just for one or two session. The treatment is usually given 2-3 times a week.

All the patients are subjected to treatment after taking a written consent, either from the patient, or a near relative. Most patients were hospitalized for the duration of treatment, but it is possible to receive ECT as an outpatient. Usually the course involves 4-6 sessions of treatment; some patients required 8 session and minority up to 12 sessions to achieve improvement. A good number reached improvement by 4 sessions.

3. Results:

0ne hindered fifty eight patients were treated by ECT, their ages between 15 and 70 years (table 1). The mean of the age is 42.5 years.

Table1. Age's distribution

Age group/years	Number of patients	%
15-20	20	12.6
21-30	63	39.8*
31-40	42	26.5*
41-50	20	12.6
51-60	9	5.6
60-70	4	2.5

**significant difference*

The main ages were between 21 and 30 years old representing 39.8% of the sample. Those who aged between 41 and 50 years represent the second group 26.5%.The difference between those groups is not significant while it is highly significant among them and other groups ($P<0.05$). Ninety two out of the 158 patients were males (58.2%) , the remaining 41.2% were females ($P<0.05$). The distribution of the diseases among patients is shown in Table2. Table 3 showed the educational levels of patients, table 4 showed the occupations of the patients , table 5 number of treatment per course and table 6 showed the course of treatment patients received according to diagnosis which showed no statistically significant differences between the diseases in this field of the study.

Table 2. Distribution of diseases among patients

Disease	Male patients		Female patients		Total patients	
	No.	%	No.	%	No.	%
Schizophrenia	62	67.4	33	50	95	60.1*
Acute psychosis	16	17.4	10	15.2	26	16.5
Mania	7	7.6	6	9.1	13	8.2
Depression	6	6.5	17	25.7	23	14.6
Personality disorder	1	1.1	0	0	1	0.6

**significant difference*

Table 3. Educational levels of patients

Educational level	Number of patients	**%**
Illiterate	58	36.7*
Grade school	44	27.8*
2nd school	49	31.1
College	7	4.4

**significant difference*

Table 4. Occupations of the patients

Occupation	Number of patients	**%**
Housewife	55	38.8*
Self employed	34	21.5*
Unemployed	22	14
Farmer	15	9.5
Student	15	9.5
Official	12	7.5
Retired	5	3.1

**significant difference*

Table 5. Number of treatment per course**.**

Number of shots	Number of patients	%
4	45	28.5
5-6	77	48.8
7-8	24	15.1
9-10	7	4.4
12	3	1.9

Table 6. Patients received two course of treatment according to diagnosis.

Disease	Number of patients	%	Males	Females
Schizophrenia	32	33.6	21	11
Mania	8	61.5	4	4
Depression	10	43.6	4	6
Acute psychosis	8	34.6	4	4
Total	58		33	25

Residency Patients came from urban areas were 82 representing (51.9%) , while those from suburban areas were 65 patients (41.1%).11 patients were from rural areas representing (7%).Statically the difference is significant between the groups, P<0.05. Period between courses of ECT: Overall average period between the two courses is 6 months with standard error of 0.197.
Table 7.

Table 7.The Period of time between the courses of treatment.

Period in months	Number of patients	%
Less than 4 months	13	22.5
4-6 months	17	29.2
7-8 months	28	48.3

4. Discussion:

Electroconvulsive therapy as a somatic treatment in psychiatry is considered as, fast, and usually tolerable method(15). Although there is no clear age limits for the use of ECT, most of the psychiatrists around the world are reluctant to use it with young people, (16 ,17) as in our study (1 patient 15 years old out of 158), while reluctance in Mosul psychiatric unit may involves the elderly (4 patients above 60 years), the efficacy and safety of this treatment in old age is well tasted.(18, 19) Yet, since most of our patients were adults (between 21and 40 years of age) and males, the picture of the people who are seeking psychiatric help had modified the results and not the psychiatrist's altitude toward the use of ECT in different age groups.

Females patients are generally more subjected to ECT and respond better than males patients, (20 ,21 ,22, 23)yet the result is opposite in our study (66 out of 158), which could be due to the difficulties facing female patients to reach medical help, due to multiple reasons, like their social roles in the current situation of the country (most of them are housewives), the security problems in the city compared with the expected poor medical help, or perhaps the better adaptation of females to stress (24). Beside that 25.7% of the treated women were suffering from depression representing 73.9% of all depressed patients treated with ECT which may reflect their reaction to stress and the severity of depression. Although electroconvulsive therapy (ECT) has generally been reserved for depressed patients refractory to other forms of treatment, its use as a first-line treatment, when indicated, can prove rapidly effective and even life saving (25).

The majority of patients were complaining from schizophrenia, 67.4%of male patients and 50%of female patients, representing 61.1%of all patients, in other study in a developing country they were 50% (26), while in an extended study in USA the majority of patients treated by ECT had bipolar disorders. (10, 27) ECT, combined with antipsychotic drugs, may be considered an option for people with schizophrenia, particularly when rapid global improvement and reduction of symptoms is desired (27). This is also the case for those with schizophrenia who show limited response to medication alone, or when effective drugs are not available.

Even though this initial beneficial effect may not last beyond the short term, there is no clear evidence to refute its use for people with schizophrenia. Although the researches base for the use of ECT in people with schizophrenia continues to expand, there remain many unanswered questions regarding its role in the management of such problem (28, 29).

There were many causes for the high rate of schizophrenic patients subjected to ECT in Mosul center, the most important was the lack of effective drugs (most of the brands are not qualified), the high cost and noncompliance, the poor follow up and the high rate of relapses after control of symptoms(33.6%of them received another ECT course within one year). Beside that most of the patients were from urban areas (51.9%) who might have higher risk to develop schizophrenia[30] and better chance to reach medical services than those from suburban and rural areas. Many patients were from poor socio-economic status (38.8%housewives,21.5% self employed, and 14% are unemployed, 36.7% are illiterates). The laxity in the diagnosis including schizophrenia was another cause, for example the inconclusive diagnosis of one case as a personality disorder without further description of which type and whether there is any co-morbidity .

The same point could be raised for a substantial number of patients diagnosed as acute psychosis. Since any psychotic patient in an acute face may present with agitation, irritability and probably confusion, time is needed to give a proper diagnosis, which seemed to be short with this group. Twenty six patients were referred to ECT for acute psychosis, mainly due to lack of drugs and the difficulties in controlling such disturbing patients, and to shorten the duration of admission. Theoretically the international classification of diseases version 10 (ICD10) diagnostic criteria was the diagnostic tool on the unit, yet traditional diagnosis was mostly used usually depending on the Schniederian first rank symptoms, with possible trend to diagnose schizophrenia in patients showing psychotic manifestations, especially if there is a relapse. More than 21% of relapsed patients subjected to change in the diagnosis from-to schizophrenia. This made such diagnosis less valid, as well as the prognosis and treatment respons (30). The relatively little numbers of patients came with other diagnosis (depression and mania) support this assumption.

Acute bipolar manic and mixed episodes often constitute medical emergencies, requiring admission to hospital and control. However, morbidity from mania is not limited to acute episodes as full recovery of functioning often lags months behind remission of symptoms (31). There are many drugs used to control the acute phase of the disease, and for maintenance. Lithium, antiepileptic , and the atypical antipsychotic have established efficacy (32 ,33). Still response rate of manic features ranges between 40%-65%(34), which reflects the difficulty in controlling this disorder. Combination of ECT and available drugs seems to be the better choice (36). Mania in this study carried the higher risk of relapse and another course of ECT within one year of treatment (61.5%).

Generally the high relapse rate after ECT represents the biggest problem, perhaps the main cause was the noncompliance of the patient with treatment, or being treatment resistant case, sometime the ECT stopped when it just starts to exerts it's effect (36).

There were other causes for the high relapse rate in our patients; although the lack of drugs might be the main cause, the possible weak diagnosis, the shortage of an acceptably organized psychiatric services, the general security state and sever stresses faced by the society which made providing the working services more difficult. Sometimes the patients or their families refused hospitalization, or could reach the hospital on dates. Many studies confirm the importance of continuation of drug therapy after improvement under ECT to prevent relapse in bipolar disorders(37, 38) and schizophrenia (39), all the above factors make ECT the easily available, cheap, safe and perhaps guaranteed treatment for such patients in their first visit and their relapse.

Conclusion:

ECT is applied in Mosul psychiatric hospital mainly for schizophrenic patients, due to lack of drugs as part of the shortage of well organized psychiatric services. This necessitates the importance of reorganizing the service including the diagnosis and availability of drugs.

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ORIGINAL ARTICLE

The Pattern of Mental Disorders in the Firs Dispensary for Mental and Neurological Disorders

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Summary:

To have an idea about the pattern of mental disorders who attend The First Dispensary for Mental and Neurological Disorders, a private mental institute. All the patients who attended the dispensary for the first time, between 1st Jan 2003 and 31st March 2003, were included in a cross sectional study. They were 142 (93males and 49 females) patients.
The mean of age was 29.7 years. There were 21.8% schizophrenia, 12.7% depression, 10.9% other psychotic disorders, and 25.4% neurotic disorders. Most of them were married. The low education level and illiterates represented 71.1%.

1.Introduction:

Psychiatry in Yemen depends mainly on private sectors. There are finger counting governmental psychiatric clinics in Yemen. There are many governorates without a psychiatric clinic or psychiatrist, so psychiatric private services offer a good support for the patients and society. In Sana'a there are 3 governmental psychiatric units. One is in the Al-Thawra General Hospital, the second is in Algomhouri hospital, and the third is the psychiatric unit in the prison. There is another hospital which is supported by Nongovernmental societies (Alamal mental hospital). An outpatient psychiatric clinic of Sana'a University offers the psychiatric consultation to the teaching staff and the students. The private sector of mental health cervices supports the governmental institutions in their services. In other countries the private psychiatric help play a major role in psychiatric services for example in Pakistan, 70% of health-care services are provided by the private sector, and this, too, is mostly curative in nature (1).

The First Dispensary for Mental and Neurological Disorders is one of the private mental institutes in Sana'a. It has offered the mental health services since 1995. These services include treatments, rehabilitation, education, and preventions through the education of the patients and their families.

Neuropsychiatric disorders represent the second disabling group of diseases after the cardiovascular diseases (2). Many studies were done to find the impact or the prevalence of mental illness. In Al-Anbar governorate in Iraq they found schizophrenia in 14.5% and neurosis in 22.6% (3) while El-Rufaie (1988) found schizophrenia in 6.5% and neuroses in 54% of Saudi sample (4). Jenkins et al (1997) find that 16% of general population had psychiatric disorders in the week before the interview (5). In Santiago they find that 53% of primary health attainders were having psychiatric morbidity (6). While Mari (1987) found the prevalence of psychiatric morbidity, in three primary care clinics in Brazil, 47-56% (7). In this study we tried to know the pattern of the mental disorders that presented to the dispensary and comparing them with other finding.

2. Methods and the patients:

All the patients attended The First Dispensary for Mental and Neurological Disorders, for first time between the 1st Jan. 2003 and 31st March. 2003, were included in a cross sectional study. We collected 142 patients (93 males and 49 females). A research design included age, sex, address, level of education, vocation, and the diagnosis according to the international classification of disorders 10th version (ICD-10) (8).We used descriptive statistics to present the results.

3. Results:

One hundred and forty two patients were included in the study. Ninety three of them were males. Their age ranged between 3years and 70 years. The mean of age was 29.7 years ± 13.5 SD. The mean of age of males was 30.8 years ±14.5SD while female's mean of age was 27.1 years ±11.2SD (Table1).

Table1 .Age distribution of the sample:

Age groups in years	Male № (%)	Female № (%)	Total № (%)
≤14	10 (11%)	4 (8.1%)	14 (9.8%)
15-24	23 (24.7%)	20 (41%)	43 (30.3%)
25-34	27 (29%)	13 (26.5%)	40 (28%)
35-44	16 (17.2%)	8 (16.5%)	24 (17%)
≥ 45	17 (18.2%)	4 (8.1%)	21 (14.7%)
total	93 (100%)	49 (100%)	142 (100%)

Table 2 showed the distribution of the study subjects according to residency, education, vacation, and marital state.

Table2. Distribution according to residency, education, vacation, and marital state of the sample:

	Male №(%)	Female №(%)	Total №(%)
Residency:			
Sana'a	47 (50.4%)	31 (63.3%)	78(55%)
Outside Sana'a	46(49.6%)	18(36.7%)	64(45%)
Total	93(100%)	49(100%)	142(100%)
Education:			
Illiterate & basic education	61(65.6%)	40(81.6%)	101(71.1%)
Secondary school	15(16%)	5(12%)	20(14%)
High education	17(18.2%)	4(8.1%)	21(14.7%)
Total	93(100%)	49(100%)	142(100%)
Vacation:			
Employed & merchants*	27(29%)	3(6.1%)	30(21.1%)
Laborer & farmers	29(31.2%)	2(4%)	31(21.8%
Unemployed & retired	22(23.6%)	Zero	22(15.5%)
Students	15(15%)	6(12.2%)	21(14.7%)
Housewife	Zero	38(77.5%)	38(26.8%)
Total	93(100%)	49(100%)	142(100%)
Marital state:			
Single	33(35.5%)	17(34.7%)	50(35.2%)
Married	48(51.6%)	29(59%)	77(54.2%)
Divorce	11(11.8%)	3(6.1%)	14(9.8%)
Widow	1(1.1%)	Zero	1(0.7%)
Total	93(100%)	49(100%)	142(100%)

* included teachers

Table 3 showed the male and females diagnosis distribution.

Table3. The diagnosis

Diagnosis	Male № (%)	Female № (%)	Total №(%)
Schizophrenia	27 (29%)	3 (6.1%)	30 (21.8%)
Other psychoses*	13 (14%)	2 (4%)	15(10.9%)
Depressions	8 (8.6%)	10 (20.4%)	18 (12.7%)
Mania	6 (6.5%)	2 (4%)	8 (5.6%)
OCD	6 (6.5%)	5 (10.2%)	11 (7.8%)
Anxieties and phobias#	8 (8.6%)	11 (22.4%)	19 (13.4%)
Conversion disorder	Zero	6 (12.2%)	6 (4.2%)
Mental retardation	2(2.1%)	2(4%)	4 (2.8%0
Movement disorders	3 (3.2%)	2(4%)	5 (3.5%)
Personality disorders	6 (6.5%)	1(2%)	7 (4.9%)
ADHD†	3(3.2%)	Zero	3(2.1%)
Drug misuse	2(2.1%)	Zero	2 (1.4%)
Epilepsy	8 (8.6%)	5 (10.2%)	13(9.1%)
Sleep disorders	1(1.1%)	Zero	1(0.7%)
Total	93 (100%)	49 (100%)	142(100%)

*included delusional disorders, schizoaffective disorders
#included general anxiety disorders. Posttraumatic stress disorders, panic anxiety disorders, and phobias
†Attention Deficit and hyperkinetic disorder

4. Discussion:

In this cross sectional study, although only financially-well people attend this clinic the patients represent nearly all the spectrum of mental disorders. However there are observations that need to be discussed. Male patients (93) exceeded female (49) in a ratio of nearly 2:1. This ratio is larger than that of Iraqi patients (3) and Egyptian patients that described by Okasha, Kamel, and Hassan (1968) (9) and nearly equal to El-Rufaie finding In Saudi Arabia. These finding probably can be explained by that men are financially and morally independent while women are more dependent on men. Khat chewing may precipitate psychosis (10, 11) play a role in another explanation is that female converted there emotional symptoms into physical symptoms. So they consulted physician more than psychiatrist in addition to fear of stigma. Also the consultation of the traditional healer played a role. There is a strong cultural belief in magic and evil eye among Yemeni people. El-Islam (1984) proposed that females in our cultures are culturally immuned against schizophrenia because the extended families provide help and support to the mentally ill until improvement and recovery occurs (12). The mean of age is 29.7 years which is younger than that of the Iraqi's mean of age (32.2) years and both are younger than that fond by Kosiyakul (2008) in Thailand (13). This can be partially be explained by the presence of high percentage of schizophrenia, the disease of young. The distribution of the age of males was more dispersed than the age females.

Most of male patients (58%) were found in the age group ranging between 15-34 years. The age of the patients in this study is higher of that fond in Egypt where the age is ranging between 20 and 30 years of age (9). El-Rufaie (1984) proposed that young people are more educated than older people so that they seek psychiatric help more than olders(4) .

In this study, although the diagnoses represent most of the psychiatric spectrum, schizophrenic diagnosis was found in 21.8% of the sample. This finding is higher than Iraqi (14.5%), Saudi (6.7%), Egyptian (15.3%) and Thailand (15.3%) studies (3, 4, 9, 11). This is probably explained by that schizophrenia need a special and more professional help than neuroses that they can be dealt with by general practitioner and traditional healers. Also we found that schizophrenic male's percentage (29%) exceeded the female's percentage (6.1%) in this study probably because of the cultural immunity proposed by El-Islam (10).

Twelve percent of female patients had conversion disorders which is nearly the same of Egyptian presentation 11.2% (9). The conversion of unresolved conflicts into physical symptoms may help in primitive cultures especially when the other did not pay attention to emotional sufferings.

Other psychoses were found in 10.9 %. Males were more than females. This might be due to that men chews khat, which might precipitate or exacerbate psychosis, heavier and more frequent than women. Neuroses were found in 25.4% of the sample. These finding is lower than what was found in Saudi Arabia by El-Rufaie (54%) and Thailand 54.4 %(4, 11). The observed lower percentage of neuroses in this study might be due to the general belief in the community that weak personality and lack of experience are responsible for the development of emotional disturbance. Also the proverb (the person is his own physician) might prevent people with emotional disorders from seeking medical help.

Depression was more in females than in males. This difference might be due to that males believe depression is shame and does not consistent with masculinity. However depression was found in 12.7% of the total sample which is nearly equal to Thailand study (13.4%) [11], but less than that of Egypt (26%) and Iraq (18.2%) (3, 9). The lower education in this study is high in this study and it is not different from what El-Rufaie (1984) found in Saudi Arabia and Olaiwi and Sultan (1998) found in Iraq (3, 4). The lower education in these studies might be due to the effect of illness on the desire of education or due to the early leaving of school for work.

In this study the patients are mostly married (54.2%). It is the same in Iraqis and Egyptian were the percentage were 50.3% and 53.5% respectively (3, 9). The high married in the sample might be explained by that the stress of life and the family burden made them more prone to the illness than others.

5. Conclusion:

This preliminary study of mental illness showed that most of the spectrums of mental disorders were present. Further studies are needed to find the real prevalence of mental illness in Yemen. The limitations of the study are the small sample and it was done on special group of patients whom do not represent real population.

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الملخص العربي

لاستخلاص فكرة عن نمط الاضطرابات النفسية الذين يراجعون المستوصف الأول للأمراض النفسية والعصبية ، احد مؤسسات القطاع الخاص. تم اخذ دراسة مقطعية لكل المرضى الذين راجعوا المستوصف لأول مرة للفترة من الأول من يناير 2003 و حتى الواحد والثلاثين من مارس 2003 و كانوا 142 مريضا (93 ذكرا و49 أنثى). كان متوسط العمر 29.7 سنة . شكل الفصام 21.8% و الإكتآب 12.7% و الاضطرابات الذهانية الأخرى 10.9% . و كان نسبة العصاب 25.4%. كان الأغلبية متزوجين. وكانت نسبة مستوى التعليم الواطئ و الأميون 71.1%.

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ORIGINAL ARTICLE

Case Report: Akathisia: It is worse than the hell

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Summary:
Two cases of attempted suicide associated with akathisia induced by haloperidol administration. One of them was schizophrenic male and the other was a manic female. The first patient tried to kill himself with bullet and then by throwing himself from 5th flour of the hospital while the second jumped from 4th flour. They attempted that because of their unbearable feelings due to (NIA). They described it as it is worse than the hell. Both attempts were impulsive. Missing the diagnosis of NIA might worsen the problem or lead to loss of the patient.

1. Introduction:

Neuroleptic induced akathisia (NIA) is a common side effect that is characterized by a subjective sense of inner restlessness and objective fidgeting movements (1). The incidence of akathisia may vary between 5-50% (2). The risk for the development of akathisia is increased by higher doses of high potency neuroleptics administered with rapid dose increment (3). Akathisia may also occur with serotonin selective re-uptake inhibitors (SSRIs) like fluoxetine(4) and paroxetine administration(5). Many case reports declare the association of akathisia with suicidality and/or violence (6, 7, 8). The underlying pathophysiology of Akathisia remains unknown. Dopaminergic receptors D2 blocking is suggested to be responsible for appearance of extrapyramidal side effect of antipsychotics in cluding Akathisia(9) and the interaction of 5-HT2 receptors activity also has an implication in the development of Akathisia(10). The link between Extrapyramidal syndrome and serotonergic system was provided by studies showing that selective SSRIs, which apparently increase 5-HT neurotransmission, has propensity to induce EPS and akathisia like syndrome (11). It was suggested that suicidal behavior associated with serotonergic system abnormality in the brain (12).

Here we represent two cases of attempted suicide associated drug induced akathisia according to DSM-IV (13).

Case № 1:

Mr. F., is a goldsmith of 34 years old, married with 7children; 5 sons and 2 daughters. He left school at basic level. He was referred to dispensary on the 11th.Feb.03 by the surgeon who found him in the balcony of the fifth flour of the hospital trying to throw himself after labrotomy for attempted suicide with bullet 5 days before his referral.
Mr. F. had complained of that neighbors were plotting against him. So he made quarrels with them that lead to bullet injury to his neck 5 years ago. The injury was superficial which was treated with simple primary suturing. His family did not aware of the problem until he accused his wife for infidelity and she tried to poison him in last 36 months. He experienced auditory hallucinations of women's voices telling him who plotted against him. He consulted a psychiatrist who prescribed Haloperidol tab. 15 mg/day in addition to Haloperidol depot 100mg and Benzhexole 6 mg/day. Mr. F. complained of sever inner tension and in ability to stand still one week later. So he consulted another psychiatrist who added fluoxetine 20mg/day. Then the tension became unbearable for that he attempted to kill himself with bullet into abdomen on 6th Feb.03. During the morning visit on the 11th .Feb. 03 they found him on the wall of balcony of the fifth flour trying to jump. So they referred him to the psychiatrist. During the examination he looked tense unable to stand or sit still. "He was repeating it is unbearable. Please help me? I knew that I will go to Hell. But it is worse than Hell".The condition was diagnosed as neuroleptic induced akathisia. We admitted the patient to the dispensary. We stopped the offending drug (Haloperidol and fluoxetine). We increased the Benzhexole dose to 15mg/day. We started iv diazepam at the beginning relief the stress. Then oral diazepam 15 mg/day and oral propranolol 15 mg/day were given. The inner tension and restlessness disappeared 5 days later. No more movement suicidal impulse and intent disappeared completely. Because of the remaining psychotic picture Respiredone 4 mg/day was given. And the patient was discharge on the 18th. Feb.03. Mr. F is still attending our psychiatric clinic with no more suicidal thoughts.

Case № 2:

Mrs. H. is a 27 years old house wife with high school level of education. she is divorced with 4 children. She was brought to the dispensary by her family. She was boisterous, irritable, verbally aggressive toward her family and the staff. Mrs. H. shouted "I am very well. I can treat my self. Doctor?! you are stupid. You do not know anything. You can only prescribe haldol (haloperidol). If you prescribe haldol for me, I will kill myself. You don't experience it. It leads to unbearable feeling. It is worse than the hell. Do you know that I got broken vertebral column? I jumped from the forth flour because of that feeling. I tried to put a limit for that suffering. The fractured vertebrae were fixed by operation." She got poor sleep she was unable to sit or lay down in spite of her operation. She shouted at anyone her brothers, me and the staff. She believed that her illness was induced by jennies and the holy Qura'an would treat her.

She was exhausted. She looks at pain and oral haloperidol 30 mg/day one week before her suicidal attempt. The patient is a known case of bipolar affective disorder. She got many manic and depressive episodes. Though she was given a prophylactic anticonvulsant as mood stabilizer she was poor compliant.

The offensive drugs were stopped. We calm the patient with repeated doses of Diazepam 10m i.v. We shifted into chlorpromazine 600 mg/day, benzhexol 15 mg/day, diazepam tab. 15mg/day and carbamazipine 600 mg/day. Her inner tension and rest less movement decreased after 7th day of admission. She was discharged 3 weeks later with chlorpromazine 600 mg/day carbamazipine 600 mg/day. Her irritability and grandiosity disappeared.

2. Discussion:

All Moslems believe that killing the self will end them in the hell forever (14). So one the causes of low suicide in Islamic countries is their religious belief and that suffering will not end by death. However we see every now and then a case of suicide or attempting suicide. In our cases they attempted suicide because of their painful suffering. It was described that it was worse than hell. The impulsivity of their act reflects the pain that they suffer of.

The risk factors for developing akathisia are using of high doses of potent antipsychotic or rapid increment of old age(3), being female, iron deficiency anemia, negative symptoms, cognitive dysfunction and mood disorder(15). In these 2 cases we found the serious side effect NIA, caused the suicidal attempts. Both cases used a potent antipsychotic haloperidol. And the addition of flouxetine in first case worsened his condition. Although the first patient is male and he was a schizophrenic the second case is female and she has a bipolar affective disorder (mania). The missing of the diagnosis of NIA leads their psychiatrist to continue on the same drug without thinking of decreasing the dose or changing the drug to less potent one in one hand and in another adding SSRI to the patient regimen of treatment. The worsening of NIA after adding SSRI flouxetine may support the propensity of serotonin in the etiology of akathisia(11) and suicide(12).

So the psychiatrist should be aware of these symptoms when they appear in the first 4 weeks after starting antipsychotics or serotonin selective reuptake inhibitors or after rapid increment of doses. The another important thing is emergence of suicide in a patient who previously does not admit suicidal thought. Bearing in mind the likely of occurrence of akathisia is important because we find only those symptoms we are looking for.

3. Conclusion:

Neuroleptic induced akathisia is a serious side effect and the psychiatrists who prescribe antipsychotics should be aware of this side effect. Any change in the movement or emotion of patient who takes antipsychotics must raise NIA possibility in the mind of psychiatrist to help the patient and to prevent suicide.

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الملخص العربي

تسجيل حالة: الزلز(قلق الجلوس): انه اسوء من جهنم

محاولتا انتحار صاحبتا الزلز الناتج عن استخدام عقار الهالوبريدول . احداهما تعاني من الزهو (الهوس) والثانية من الفصام. الأولى: رجل حاول قتل نفسه بإطلاق الرصاص ثم بمحاولة إلقاء نفسه من الطابق الخامس في المستشفى والثانية قفزت من الطابق الرابع. المحاولتان كانت بسبب مشاعرهما الغير المحتملة بسبب الزلز الناتج عن تعاطي الأدوية المؤثرة عقليا . وقد قالا بأنها أسوء من عذاب جهنم. و قد كان المريضان اندفاعيين. قد تسوء حالة المريض أو نفقده إذا أهملنا تشخيص حالة الزلز.