Relation between the clinical presentation and etiology of obstructive jaundice

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العلاقة بين العلامات السريرية و مسببات اليرقان ألانسدادي

الخلاصة

تمهيد: أسباب اليرقان ألانسدادي عديدة و متنوعة و علاجها النهائي يعتمد على طبيعة المسبب و موضع الانسداد، وقد تكون الفحوصات المطلوبة لمعرفة هكذا معلومات غير متوفرة أو مكلفة ماديا. الهدف : دراسة العلاقة بين بعض العلامات السريرية و النتائج المختبرية (عمر وجنس المريض والأعراض التي يعاني منها و مستوى البيليروبين (TSB) و الفوسفاتيز القاعدي (ALP) في الدم) وسبب اليرقان ألانسدادي من حيث كونه سرطاني أو حميد. الطريقة: تم إجراء الدراسة في مستشفى بغداد التعليمي حدائرة مدينة الطب على مدار ثلاث سنوات سابقة. تم جمع المعلومات حول عمر و جنس و أعراض المريض و كذلك نتائج التحاليل المختبرية من السجلات الطبية للمرضى و الطريقة: تم إجراء الدراسة في مستشفى بغداد التعليمي حدائرة مدينة الطب على مدار ثلاث سنوات سابقة. تم جمع المعلومات حول عمر و جنس و أعراض المريض و كذلك نتائج التحاليل المختبرية من السجلات الطبية للمرضى و النتائج: شملت الدراسة 600 مريض تراوحت أعمار هم بين 18 و 80 سنة و شملت 108 من الذكور و 98 من الإناث. شكلت الأسباب السرطانية نسبة %52 من المرضى معظمهم فوق سن الخمسين سنة. بلغ معدل البيليروبين الإناث. شكلت الأسباب السرطانية نسبة %52 من المرضى معظمهم فوق سن الخمسين سنة. بلغ معدل البيليروبين في الحالات السرطانية المرطانية نسبة %52 من المرضى معظمهم فوق سن الخمسين سنة. بلغ معدل البيليروبين الإناث. شكلت الأسباب السرطانية نسبة %52 من المرضى معظمهم فوق سن الخمسين سنة. بلغ معدل البيليروبين الإناث. شكلت الأسباب السرطانية نسبة %52 من المرضى معظمهم فوق الباليووبين لديه أكثر من 10 mg/dl في الحالات السرطانية 20 الم الي ألما قي الحالات الحميدة فكانت 20 mg/dl و 80 س في الحالات السرطانية 20 الم ترجح أن يكون سبب الإن الحمين عاما أو مستوى البيليروبين لديه أكثر من 20 mg/dl ، هذه الاستنتاج : كون المريض ذكرا أو عمره فوق الخمسين عاما أو مستوى البيليروبين لديه أكثر من 20 mg/dl ، هذه في الحالات السرطانية 20 mg/dl ، مو فوق الخمسين عاما أو مستوى البيليروبين لديه أكثر من 20 mg/dl ، هذه الاستداد حميدا. فيما يتعلق بمستوى الفوسفاتيز القاعدي وجود الألم والحمى لدى المريض يرجح أن يكون سبب كلمات البحث: يرقان انسدادي، سرطاني، حميد

<u>Abstract</u>

Background: Obstructive jaundice encompass a wide range of diseases, its final management depend on the cause and the level of obstruction.

Objective:To Clarify the relation between Age, gender, Symptoms of patient, Total Serum Bilirubin (TSB) level and serum Alkaline Phosphatase (ALP) level and the causes of obstructive jaundice (benign or malignant?).

Patients and Methods: Retrospective study conducted in Baghdad teaching hospital covering three years period. The age, gender, symptoms of the patient, total serum bilirubin (TSB) and serum alkaline phosphatase (ALP) were evaluated as predictive factors for the underlying obstructing pathology.

Results:_206 patients with obstructive jaundice were included .The ages ranged between 18 to 80 years. 108 males and 98 females male to female ratio 1.1:1 . malignant pathologies found in 52% of patients most of them above the age of 50 year. The mean level of TSB in malignant cases was 18 mg/dl while in benign group was 9.16 mg/dl.

Conclusion: Male gender , age more than 50 year , weight loss and TSB level more than 10 mg /dl are factors associated with increased risk of malignant underlying pathology of obstructive jaundice , while the presence of pain and fever is suggestive of benign cause .The level of ALP cannot be used as a predictive factor for the cause of the obstructive jaundice.

Keywords obstructive jaundice, benign, malignant

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Introduction

Jaundice (derived from French word 'jaune' for yellow) is a yellowish staining of the skin, sclera and mucous membranes by deposition of bilirubin in these tissues (1). Jaundice starts to be seen in the sclera when serum bilirubin level reach 2.5 mg/dl while yellowish discoloration of the skin and mucus membrane does not becomes readily apparent until serum bilirubin exceed 6 mg/dl (2). Obstructive jaundice encompasses a wide range of diseases. Although these can be distinguished on clinical and biochemical grounds, there is occasionally an overlap (3). The final management of obstructive jaundice patients depend on the cause and the level of obstruction ,these data can be obtained by different imaging procedures such as ultrasound, magnetic resonance cholangiopancreatography (MRCP) and endoscopic retrograde cholangiopancreatography (ERCP) but these modalities of investigation are coasty, not always available or there is no time to performed because of the critical condition of some patients so the prediction of the underlying etiology based on simple clinical and biochemical values will shade some light on the potential options in the management under such circumstances. In our study we selected the age, gender and some symptoms of the patient beside the level of the bilirubin and alkaline phosphatase as indicators of the possible underlying pathology weather benign or malignant.

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Aim of the study

To Clarify the relation between Age, gender, Symptoms(jaundice, pain ,fever ,itching , weight loss), Total Serum Bilirubin (TSB) level and serum Alkaline Phosphatase (ALP) level and the causes of obstructive jaundice (benign or malignant?)

Patients and method

Retrospective study conducted in Baghdad teaching hospital covering the period from the 1st of January 2007 to the 1st of January 2010 (three years period). the clinical and biochemical data regarding the age , gender , symptoms of the patient (jaundice, fever, itching ,pain and weight loss),total serum bilirubin (TSB) and serum alkaline phosphatase (ALP) from the case records of the patients with obstructive jaundice proved by biliary dilatation demonstrated by abdominal ultrasound . all patients whom subjected to surgical treatment were included in the study and the operative finding with or without histopathological report considered as the final diagnostic method of the etiology of the obstructive jaundice (benign or malignant).these data arranged in working sheet of the Microsoft excel 2007 application. Chi-square test used to evaluate the statistical significance of gender, pain, fever, and weight loss in relation to causes at level of significance 0.01. Z-test used to evaluate the statistical significance of Age, TSB and ALP in relation to causes at level of significance 0.01.

Results

206 patients with obstructive jaundice were included .The ages ranged between 18 to 80 years (average is 49 years). The youngest patient was 18 years old male with pancreatitis and the oldest patient was 80 years old male with cholangio carcinoma .the youngest patient with malignant pathology was a 30 years old female with cholangio carcinoma.

Regarding the gender of patients, 108 males and 98 females (52.4% and 47.6% respectively) male to female ratio 1.1:1.

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The malignant cases represent 52% (pancreatic head tumor followed by cholangiocarcinoma and ampullary tumor) while the benign causes present 48% at the top of the list are the common bile duct (CBD) stones ,iatrogenic injury to the common bile duct , hydatid disease and pancreatitis in order of frequency .

Benign cases were more frequent than malignant till the age of 50 when malignant cases preceding the benign cases (fig no 1). If we compare the age group 31-40 years where benign cases are much more than malignant (80% and 20% respectively) while in age group 71-80 years the malignant cases is more than benign (81% and 18.8% respectively) these data was tested by Z-test at level of significance of 0.01 and found to be statistically significant.



Fig no 1 Distribution of benign and malignant causes according to the age groups

In this study the malignant causes were more common in males than females (57.7% and 46.9% respectively) while stones and iatrogenic injury to the CBD were more common in females. These data were evaluated by chi-square test at level of significance 0.01 and the observed result is found to be statistically significant.

The symptoms of patients and its percentage seen in the table bellow. Jaundice was present in 196 out of 206 patients at time of presentation (95.1%) and 10 patients with CBD stones their TSB was bellow 2.5 mg/dl and not jaundiced at time of presentation (4.9%)

| SYMPTOMS | NO OF PATIENTS | % | BENIGN | % | MALIGNANT | % |
|-------------|-------------------|------|--------|------|-----------|------|
| Jaundice | 196 | 95.1 | 88 | 44.8 | 108 | 55.1 |
| Pain | 154 | 74.7 | 84 | 54.5 | 70 | 45.4 |
| Itching | 152 | 73.7 | 76 | 50 | 76 | 50 |
| Weight loss | 152 | 73.7 | 52 | 34.2 | 100 | 65.7 |
| Fever | 130 | 63.1 | 72 | 55.3 | 58 | 44.6 |

Symptoms of patients with obstructive jaundice

The differences in the pain, fever and weight loss in benign cases in comparison to malignant cases were tested by chi-square test and found to be statistically significant. Four patients of caused by malignant metastatic pathologies were excluded from the observations concerned with TSB and ALP, to avoid any contributing factor, which may cause alteration in their levels other than mechanical obstruction of the bile flow. the mean of TSB level in benign group was 9.16 mg/dl and only 34 patients out of 98

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patients (34.6%) have TSB level above 10 mg/dl. while in malignant group the mean of TSB was 18 mg/dl and 94 out of 104 patients (90.3 %) have TSB above 10 mg/dl These values tested by Z-test at level of significance 0.01 and found to be statistically significant.

Regarding the ALP, in benign group the mean was 316.4 IU/L while in malignant group the mean was 321.23 IU/L These values tested by Z-test at level of significance 0.01 and found to be statistically *not* significant.

Discussion

In our study, the mean age of patients was 49 year with male to female ratio 1.1 : 1 and the malignant conditions were more frequent than the benign one. Increased risk of malignant conditions with ageing, is well noticed in different malignancies, in our study the malignant conditions dominating in ages over fifties, similar finding noticed by Khurram (4), Muzaffar (5) and Syed (6).

In our study Male patients were more at risk of malignant conditions ,that agrees with the finding of Muhammad $_{(7)}$, but that was not the case in other studies which showed female dominating in both benign and malignant cases $_{(4,6)}$

Absence of clinical jaundice in some cases of CBD stones can be explained by the fact that the stone can be floating in the CBD causing an intermittent obstruction (9)

According to our result features of cholangitis were more common in benign cases these finding goes with the finding of Khurram $_{(4)}$ and Syed $_{(6)}$

That can be explained by the fact that the highest rate of bile colonization is found in patients with choledocholithiasis and biliary stricture, where many patients as 80% may have positive culture while in malignant cases only 1/3 of patients have positive culture (10).

High mean TSB level in malignant cases can be explained by the sustained and tight malignant obstruction in comparison to intermittent obstruction caused by a stone, this fact is demonstrated as well by Hayat $_{(11)}$, Cheema $_{(12)}$ and Mie $_{(13)}$, but other study failed to demonstrate any difference in TSB level between benign and malignant cases $^{(4)}$

Although elevation of ALP is the most widely used and probably the most sensitive indicator of biliary obstruction $_{(9)}$. But its level doesn't give a hint on the underlying pathology this was demonstrated by our study and others $_{(4,5,6)}$

Conclusion

Male gender , age more than 50 year , weight loss and TSB level more than 10 mgm /dl are factors associated with increased risk of malignant underlying pathology of the obstructive jaundice , while the presence of pain and fever is suggestive of benign cause .the level of ALP cannot be used as a predictive factor for the cause of the obstructive jaundice.

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