วารสารแพทย์เขต ๖-๗ ปีที่ ๒๗ ฉบับที่ ๒-๓ เม.ย. - มิ.ย. ๒๕๕๑ Reg 6-7 Med J Vol. 27 No. 2-3 April - June 2008

นิพนธ์ต้นฉบับ Original Article

Diagnostic Yield in the Upper Gastrointestinal Study for the Clinical Gastric Disease Patients

โอกาสพบความผิดปกติจากการตรวจทางรังสีโดยการกลืนแป้งในผู้ป่วยที่มีอาการปวดท้องที่มีลักษณะทางคลินิกสันนิษฐานว่าเป็นพยาธิสภาพของโรคกระเพาะอาหาร

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ABSTRACT

Objective : 1. to assess diagnostic yield in the upper gastrointestinal study for the clinical gastric disease patients.

2. to determine correlation of to age, sex and underlying disease to the abnormal upper gastrointestinal study finding.

Materials and methods : During 1st September 2005 - 31st October 2007, 92 patients with clinical gastric disease came to the general medicine division and examined by general medicine, medical doctors and surgeons (55 women, 37 men, mean age 51.55, range 11-86 years). The clinical records were reviewed for clinical informations.

Results : The diagnostic yield in the upper gastrointestinal study for the clinical gastric disease patients was 69.6%. There was 57.6% with major positive, meaning abnormal finding with altering the management.

The sex has strong correlation with abnormal UGI study findings but there is no correlation with age and underlying disease.

Conclusion : Diagnostic yield in hospital based patient with clinical gastric disease was about 69.6%. Men have more opportunity to detect abnormal UGI study findings than women due to more prevalence in

ulcerative process which is easily detect. Both age and existing of the underlying disease are no effects for detection abnormal UGI study finding. The UGI study still is a valuable procedure for evaluation in clinical gastric disease especially men with more strictly following guideline.

Keywords : the UGI study, peptic ulcer disease, clinical gastric disease.

บทคัดย่อ

การศึกษาย้อนหลังในผู้ป่วยที่มีอาการปวดท้องที่ลักษณะทางคลินิกสันนิษฐานว่าเป็นพยาธิสภาพของโรคกระเพาะอาหารที่ได้รับการตรวจพิเศษทางรังสีโดยการกลืนแป้งของหลอดอาหาร กระเพาะอาหารและลำไส้เล็กส่วนต้นในโรงพยาบาลประจวบคีรีขันธ์ ตั้งแต่ กันยายน 2548 ถึง ตุลาคม 2549 จำนวนทั้งสิ้น 92 คน โดยทำการศึกษาโอกาสที่จะพบความผิดปกติและความสัมพันธ์กับ อายุ เพศ และ โรคประจำตัว พบว่าโอกาสพบความผิดปกติจากภาพถ่ายทางรังสีจากการตรวจพิเศษทางรังสี ในผู้ป่วยที่มีอาการปวดท้องที่ลักษณะทางคลินิกสันนิษฐานว่าเป็นพยาธิสภาพ ของกระเพาะอาหารอักเสบเท่ากับร้อยละ 69.6 โดยพบว่าเพศชายมีโอกาสพบความผิดปกติมากกว่าเพศหญิงอาจเนื่องจากอุบัติการณ์การเกิดแผลพบในเพศชายมากกว่า ซึ่งทำให้การมองเห็นความผิดปกติจากภาพถ่ายทางรังสีได้ง่ายกว่าเพศหญิง สำหรับอายุ และโรคประจำตัวไม่มีความสัมพันธ์กับโอกาสการพบความผิดปกติทางรังสีเลย

โดยสรุปการตรวจพิเศษทางรังสีโดยการกลืนแป้งในผู้ป่วยมีอาการปวดท้องที่ลักษณะทางคลินิกสันนิษฐานว่าเป็นพยาธิสภาพของโรคกระเพาะอาหารยังมีประโยชน์มาก โดยเฉพาะในกรณีผู้ป่วยเพศชายและอาการแสดงที่ชัดเจนตามแนวการส่งตรวจ

Introduction

The clinical gastric disease is one of common complaints for outpatients division. There are many procedures using for evaluation in clinical gastric disease's patients such as the upper gastrointestinal study, endoscopic examination, computed tomography or etc. Talley, et al concluded that endoscopic examination is more sensitive and specific for peptic ulcer disease than UGI barium studies and allows biopsy of the gastric lesion.[1] There is a key recommendation for practice to prompt upper endoscope in patients with peptic ulcers who are older than 55 years, those with alarm symptoms and those with ulcers that do not response to treatment with evidence rating A (means consistent and good quality patient oriented evidence).[2]

But due to major disadvantage of the endoscopic examination is invasive procedure and some reports indicate that the UGI study is more accurate in diagnosis than endoscopic examination in scirrhous gastric carcinoma,[3-6] the UGI study is still performed. There is no definite indication for requesting the upper gastrointestinal study. Einstien, et al determined that major indications for upper gastrointestinal examination were dysphagia and swallowing disordered 32%, hiatal hernia and reflux 14% and clinical gastric disease 14%.[7]

The diagnosis yield of the upper GI study is varied. Munitz, et al states that overall sensitivity of the upper GI study was 65%.[8]

In Prachuabkirikhun hospital, the diagnostic yield is not determined.

This study aims to determine diagnostic yield for the UGI study in clinical gastric disease and assesses the correlative factors such as sex, age and underlying disease.

Materials and Methods

A retrospective study of all patients identified on the general medicine division at Prachuabkirikhun hospital who presented with clinical gastric disease and who underwent the UGI study during the 24 months period from September 2005-October 2007 was undertaken.

The medical records were reviewed for clinical information and the clinical gastric disease was proven by general medicine, medical doctors and surgeons.

The clinical gastric disease is defined as below ;

History - patients typically present with abdominal pain that has the following characters ;

1. epigastric to left upper quadrant pain.
2. frequency described burning.
3. pain may radiate to the back.
4. pain usually occurs in 1-5 hours after meals.
5. pain may be relieved by food, antacid or vomiting.
6. pain typically follows a daily pattern specific to patient

Physical examination

1. epigastric tenderness is present and usually mild.
2. normal bowel sound.
3. sometimes sign of peritonitis or gastrointestional bleeding.[9]

Exclusion criteria are patients with other complaints and known gastric malignancy or gastric surgery.

All patients received at least one investigation with the UGI study (the upper gastrointestinal study). The UGI study (double air contrast technique) was performed by using 150% w/v barium suspension (Solotop) 300-350 ml and tap effervescent gran (Tae Joon) under fluoroscopic examination from Toshiba KXO-50F/KDU S/N 30544199 640 mA 150 KVp. The spot films were done at the mid thoracic esophagus, the EG junction, the entire stomach, the duodenal bulb, the post bulbar duodenum (the C-loops) and the duodenojejunal junction in the upright, supine, right anterior oblique and left anterior oblique position. Then the over-head films were performed in supine AP and left lateral views of the stomach.

All the UGI findings with clinical gastric disease's patients were reviewed. There are three patterns of interpretation as

1. negative finding means normal finding.
2. minor positive finding means abnormal finding without change in the treatment.
3. major positive finding means abnormal finding lead to change the treatment.

Results were analyzed using SPSS version 11.5. Confidence intervals of 95% and p-value of < 0.05 were considered statistically significant. The Spearman's rank correlation coeffients at $p < 0.005$ was used to determine the association between

age, sex, underlying disease and abnormal UGI finding.

Results

92 patients who have clinical gastric disease were identified. The age ranged from 11 years to 86 years and the mean age was 51.55 ± 16.21 years.

There are 40.2% male (n = 37) and 59.8% female (n = 55).

There is about 47.8% patients (n = 44) with underlying disease and about 52.2% (n = 48) patients without underlying disease.

The overall diagnostic yields is about 69.6% (n = 64). The minor positive findings is about 11.0% (n = 12.0) and the major positive findings is about 57.6% (n = 53). There is about 30.4% (n = 28) negative findings.

There is strong correlation between abnormal UGI finding with sexes by men can detect more abnormal findings by the UGI study than women. There is no correlation with underlying disease and age, using Pearson correlation and Spearman's rank correlation coeffients at $p < 0.005$.

Topic	p - value
Age	0.078
Sex	0.369
Underlying disease	0.072

Discussion

Upper gastrointestinal study is the radiographic study of the gastrointestine by using the barium meals. The examination is designed to coat the mucosal surface with a thin layer of high density barium while the lumen is distended with gas. The routine upper gastrointestinal examination should be included at least the distal half of the esophagus, the stomach and the duodenum to the duodenojejunal junction[12] Eventhrough the literatures concluded that endoscopic examination is more sensitive and specific for peptic ulcer disease than UGI barium studies and allows biopsy of the gastric lesion,[1,3] the UGI study is still indicated when the endoscopy is insuitable or not feasible or complication such as gastric outlet obstruction suspected[2] or in somewhere the endoscopy is not available or some cases

Table 1 shows number of patients with varying theirs age.

Age range (years)	No. of patient
Under 30	8 (8.7%)
31-40	16 (17.4%)
41-50	22 (23.9%)
51-60	19 (20.7%)
61-70	13 (14.1%)
OVER 71	14 (15.2%)

Table 2 shows number of patients with varying abnormal UGI findings

Abnormal UGI findings	No. of patient
Gastroduodenitis and ulcer	39 (%)
Malignancy	8 (%)
Gastroesophageal reflux	6 (%)
Other	11 (%)

as scirrhous carcinoma. Park, et al concluded that the UGI series is more accurate in diagnosis accurate in endoscopic examination in scirrhous gastric carcinoma.[3]

The diagnosis yield of the upper GI study is varied. Munitz, et al reviewed that overall sensitivity of the upper GI study was 65%.[8] The overall diagnostic yield for this study is about 69.6% with major positive study is about 57.6% and negative study about 30.4%. This result is slightly higher than the previous study which represented the more strictly in criteria for requesting the UGI study. But there is doubtful in these negative studies, there is no evidence for approving actually true negative study. Marthin, et al stated that small ulcer can missed in upto 60% of the examination.[11] The literatures reviewed that the patients with alarm symptoms as evidence of bleeding (anemia, melena), perforation (severe sharp pain), obstruction (vomiting), malignancy (weight loss or anorexia) and age older than 55 years should have prompt EGD (esophagogastroduodenoscopy).[2] So in the negative study of the UGI study especially in high risk peptic disease patient (alarmed symptoms or old age), the further investigation as endoscope examination is highly recommended.

In this study, there is strong correlation between abnormal UGI finding with only sexes, men can detect more abnormal findings than women. Shayne, et al presented that prevalence of male to female ratio for gastritis is approximately 1 : 1 and for peptic ulcer disease is approximately 2 : 1[9]. The UGI study finding in gastritis is varied from mild degree, which is seldom abnormality detected, to severe degree but in ulcer disease, the finding is more obvious.

Higher prevalence of the peptic ulcer disease is more in men makes more abnormal UGI finding detection.

This study shows that there is no correlation in abnormal UGI study finding with underlying disease and age. In literature, the duodenal ulcer usually occurs in those aged 25-75 years and gastric ulcer prevalence peaks in those aged 55-65 years.[9] This may be due to small sample size in each age group. The further study with more sample size is required.

There is evidence based study reveals that upper gastrointestinal radiography is not a cost effective strategy for peptic ulcer disease and also concluded that the initial management of the dyspeptic patient with empiric treatment with H. pyroli eradication is the most cost effective strategy.[10] In this study, there is about 8.0% patient with malignancy detected by UGI study. If there is only empiric treatment instead of the performing the UGI study, there will be delay diagnosis and treatment for those patients.

Conclusion

The overall diagnostic yield for the UGI study in the clinical gastric disease patients is about 69.6%. More strictly in indication makes higher in diagnostic yields. Because of high in false negative value, the negative study should be followed by endoscopic examination. Men are prone to be detected abnormal finding than women because of high prevalence of ulcer disease which are easily visualized. The underlying disease and ages are no correlation with opportunity for abnormal UGI study finding detection.

The upper gastrointestinal study is still valuable especially in men with strictly in the indication for clinical gastric disease.

Acknowledgement

I was indebted to the radiographic and general medicine division of the Prachuab Kirikhun hospital for data collection and Mrs. Kulnita sungkua for statistic analysis.

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