Pain score within twenty-four hours post-endoscopic retrograde cholangiopancre- atography: a comparison between diagnostic and therapeutic procedures

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Abstract

Endoscopic retrograde cholangiopancre- atography (ERCP) is an invasive procedure and can produce moderate to severe abdomi- nal pain. Limited information is available regarding pain assessment after the procedure. This study aims to compare the pain scores between diagnostic and therapeutic procedures within 24 hours post-ERCP in adult patients. We prospectively analyzed the patients who underwent ERCP from February to November 2007. Pain scores and pain medications used at 2, 6, 12, 18, and 24 hours post-procedure were studied. One hundred and seventy-seven patients, 29 with a diagnostic ERCP (group D) and 148 with a therapeutic ERCP (group T), were enrolled. The mean pain scores at baseline were not significantly different between the two groups. The mean pain scores at two and six hours post-ERCP in group T were significantly higher than in group D (p=0.035 and 0.020, respectively). The scores at the other periods of time in both groups were not significantly different. The total dose of pethidine used for pain control after ERCP in both groups was not significant- ly different. In conclusion, ERCP-induced abdominal pain mainly occurs within six hours after the procedure. Therapeutic ERCP has a higher pain score than that of diagnostic ERCP only at two and six hours post-ERCP.

Introduction

Pain is a complex, private experience, and attempts to make valid assessments of pain have been fraught with difficulties. It is influenced also by numerous intrinsic and extrinsic factors, and the multiple aspects of pain have been assessed in many different ways. The assessment of perceived pain is not only necessary in the clinical setting for diagnosis and choice of treatment but also important for the evaluation of treatment efficacy in a research context. The pain intensity assessed by using the pain score1-4 is relatively the most common method for assessment of severity of pain. The reliable and valid measures of pain are essential for conducting clinical trials of pain treatments.5 Fortunately, in most situations, the most commonly used measures of pain intensity, including visual analog scales (VAS), have been shown to have adequate sensitivity to study pain and pain control medication across many populations and settings.

Endoscopic retrograde cholangiopancre- atography (ERCP) is an invasive procedure. It commonly uses the pancreatobiliary abnor- malities for diagnosis and treatment.4,6 The procedure can produce abdominal pain. We hypothesized that therapeutic ERCP would produce higher pain intensity than diagnostic ERCP. The aim of this prospective study was to assess and compare the pain scores between diagnostic and therapeutic ERCP in adult patients within 24 hours after the procedure.

Materials and Methods

This study was a prospective observational study. All patients who underwent ERCP for the diagnosis and treatment of the pancreatobilia- ry disorders in Siriraj GI Endoscopy Center, Faculty of Medicine Siriraj Hospital, from February to November 2007 were evaluated for eligibility for the study. We excluded patients with confusion and/or cognitive impairment. Patients who had general anesthesia during the procedure were excluded as well.

Endoscopy procedure

All ERCP procedures were done using an Olympus video duodenoscope (TJF 160 R, Olympus Corporation, Tokyo, Japan). After completion of the ERCP, admission into the inpatient hospital service was arranged to rule out post-ERCP complications and to assess the pain score. However, we did not measure serum amylase and lipase levels to rule out post-ERCP pancreatitis.

Anesthesia-related procedure

The patients were monitored as regards non-invasive blood pressure, ECG, and pulse oximetry. All patients were sedated by using an intravenous sedation (IVS) technique. Complications such as hypotension or airway obstruction were recorded. After the ERCP procedure, only pethidine was used for pain relief medication.

Results

Two hundred and two ERCP procedures were performed between February and November 2007. Of the 177 patients, 29 (12 men, 17 women; mean age 59.5±19.7 years)

Measurement of pain

Patients were instructed to make a single vertical mark on a horizontally oriented, ungraduated 100-mm VAS labeled with “no pain” at the far left and “most pain possible” at the far right end. As a measure of reliabili- ty, the patients were asked to score their pain before the procedure and then repeat this at certain times (2, 6, 12, 18, and 24 hours) after the procedure. A VAS score was assessed by the ward nurses. If the patients were asleep, the pain score would not be evaluated. After the ERCP procedure, intramuscular pethidine was used for pain relief medication and was given to the patients when their VAS scores were ≥30. The total amount of pethidine used during 24 hours post-procedure was recorded.

Statistical analysis

Results were expressed as mean±SD or percentage (%), when appropriate. Compar- isons between diagnostic and therapeutic groups were made by using the 2-test (for categorical variables). The χ2-test was used for ordinal variables, and the two-sample independent t-test was used for continuous variables. The statistical software package SPSS for Window Version 11 (SPSS Inc., Chicago, IL, USA) was used to analyze the data. All statistical comparisons were made at the two-sided 5% level of significance.
classified in group D (Diagnostic) and 148 (75 men, 73 women; mean age 60.4±15.1 years) in group T (Therapeutic) met the inclusion criteria and were enrolled in the study.

The characteristics of the group D and T populations were compared. There were no significant differences between the two groups in age, gender, weight, height, ASA physical status, and indication of the procedure (Table 1). The duration of the procedure in therapeutic ERCP was significantly longer than in diagnostic ERCP (42.9 and 18.8 minutes, p=<0.001). In group T, the interventions were stent removal and/or insertion (63.9%), stone removal (24.1%), and others (12.0%). Most of them required sphincterotomy (64.7%) and removal (24.1%), and others (12.0%).

Measurement of pain

There were no statistically significant differences in the mean baseline pain scores before ERCP and the mean VAS scores at 12, 18, and 24 hours post-ERCP between the D and T groups. However, the mean VAS scores at two and six hours post-ERCP in the T group were significantly greater than in the D group (p=0.035 and 0.020, respectively). In addition, the highest pain scores occurred at two hours post-ERCP in both groups (Table 2).

Table 3 shows the mean VAS score of ≥30 mm in both groups. During 24 hours post-procedure in the D and the T groups, there was a high number of patients who experienced VAS scores of ≥30 mm at two and six hours post-ERCP. The pain scores in these two groups reduced after six hours. The mean pain score of ≥30 mm at all periods of time was not significantly different between the two groups.

All patients were sedated by anesthetic personnel during the procedures. Sedative agents used for the procedures were propofol (2.9±1.7 mg/kg in D and 4.4±2.7 mg/kg in T) and midazolam (0.02±0.01 mg/kg in D and T). There was no statistically significant difference between the two groups (p=0.423 and 0.698) in the sedative agent used during the procedure. Pain medication during ERCP in both groups was fentanyl (0.001±0.000 mg/kg in D and T), and some had precutting papillotomy (20.3%) ERCP was performed by three senior endoscopists with more than 10 years’ experience.

![Image](Gastroenterology Insights 2009; 1:e7)
Abdominal pain from post-ERCP pancreatitis may affect the VAS score. Third, the pain score assessed in this study was limited to pain intensity and pain relief medication. There could be considerable individual variation in post-ERCP pain perception even following standardized procedures. Fourth, we did not assess the pain score when patients were asleep.

Despite these limitations, the findings may have important implications for the assessment and treatment of post-ERCP abdominal pain. Overall abdominal pain severity after this procedure is of mild intensity and occurred mainly at two to six hours post-ERCP. Physicians should evaluate their patients’ pain intensity carefully especially in the first six hour after the ERCP procedure. Patients who have therapeutic ERCP need more attention during this time period.

References

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