European **Rev**iew for **Med**ical and **Pharmacol**ogical **Sci**ences 2003; 7: 181-182

What sedation to use during endoscopic procedure

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Abstract. – **Many endoscopists sometimes prefer to perform endoscopies without anaesthetic support, using only benzodiazepines. Endogenous opioid peptides are believed to play an important role in the modulation of pain within the endogenous analgesic system. A group of 40 patients undergoing diagnostic and therapeutic Endoscopic Retrograde Cholangiography and Pancreatography (ERCP) was recruited. Patients were divided into 2 groups according to Visual Analog Scale: pain 1-5 (Group A) and pain 6-10 (Group B). The β-endorphin baseline values were significantly different between patients of Group A and Group B. Our data show that patients with levels of β-endorphin over 8 pmol/L were less sensitive to pain, so that they become candidates for a traditional utilization of the benzodiazepines. However in the patients with beta-end levels less of 8 pmol/L should be suitable an anaesthetic as propofol because strong pain might provoke neurohumoral reflexes, cardiovascular alterations, and even a heart attack.**

Key Words:

Endorphins, Endoscopic procedures, Pain, ERCP, Propofol.

Introduction

Many endoscopists sometimes prefer to perform endoscopies without anaesthetic support, using only benzodiazepines, because they consider pain as a precious guide which signals the operator to stop if the manoeuvre was wrong. Moreover anaesthetic administration needs anaesthetist's presence.

Endogenous opioid peptides are believed to play an important role in the modulation of pain within the endogenous analgesic system[1-3] and appear to be involved at different levels of the gastrointestinal system, including hepatobiliary function[4,5]. Thus, in a group of patients undergoing ERCP we monitored the grade of pain, during the procedure, after having measured their β-endorphin basal levels to assess to which patients to administer a sedation drug as benzodiazepine and for which patients would be advisable an anaesthetic drug.

Methods

Patients with a previous history of liver disease, alcoholism and sonographic findings consistent with tumour masses were excluded from this study. A group of 40 patients (23 females and 17 males) aged between 21 and 52 years old, with solitary gallbladder stone (range 16-20 mm) undergoing therapeutic Endoscopic Retrograde Cholangiography and Pancreatography (ERCP) was recruited. Patients presented a history of abdominal pain and abnormal ultrasonography, but, when performing ERCP, all patients were free of pain since at list for a week.

Liver biochemistry (serum total bilirubin, alkaline phosphatase, gamma-glutamyltransferase and amylase) was evaluated using a commercial autoanalysis machine.

In all patients, diagnostic ERCP was performed. Pain intensity during ERCP was scored using the Visual Analog Scale6. Patients were divided into 2 groups according to Visual Analog Scale: pain 1-5 (Group A) and pain 6-10 (Group B).

Our 15 healthy control subjects were matched for sex and age. EDTA blood samples for plasma β-endorphin analysis were collected in glass tubes. Samples were immediately centrifuged in a refrigerated centrifuge for 15 min at 1500 RPM. β-endorphins were extracted from plasma on ODS-SILCA columns and measured by radioimmunoassay, using kits of the ImmunoNuclear Corporation (Stillwater, Minnesota, USA).

Values are expressed as mean ± SD. For statistical analysis Student-t test for paired data was used for comparing opioid levels at different time points and versus basal or control values. A p value < 0.05 was considered significant.

Results

According to the Visual Analog Scale, 18 patients were included a group A (pain 1-5), 22 in group B (pain 6-10).

All patients experienced pain during ERCP.

The β-endorphin baseline values were significantly different between patients of Group A and Group B (10.03 ± 3.6 pmol/L versus 6.01 ± 2.8 pmol/L; p = 0.000).

The "less pain" group (Group A) had β-endorphin values higher (> 8 pmol/L) than "more pain" group (Group B) (< 8 pmol/L).

Discussion

These data indicate that patients with levels of β-endorphin over 8 pmol/L were less sensitive to pain, so that they become candidates for a traditional utilization of the benzodiazepines. However, in the patients with β-endorphin levels less of 8 pmol/L should be suitable an anaesthetic as propofol because strong pain might provoke neurohumoral reflexes, cardiovascular alterations, and even a heart attack.

It is evident that a difficulty to follow this indication is that the patients undergoing ERCP should be free of pain. Another difficulty is the no-routine of β-endorphin dosage.

Propofol is a phenolic derivative with sedative and hypnotic properties but is unrelated to other sedative/hypnotic agents.

This drug acts quickly than the benzodiazepines with a complete relief of discomfort. Furthermore, after administration, the patients reach a normal state of alertness in about half the time seen with narcotics and benzodiazepines[7]. So, this drug could be put in normal routine of the endoscopists, without the presence of anaesthetists, like it is proposed in USA.

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