

The effect of Metoclopramide (Primperan®) on the Pyloric Sphincter during Gastroscopic Examination

A Double Blind Investigation versus Placebo

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ABSTRACT

The effect of metoclopramide and placebo on relaxation of a spasmodic pylorus during gastroscopy have been compared using a double blind technique. Metoclopramide showed a better result and the difference between its effect and the effect of placebo is statistically significant ($p < 0.01$). Metoclopramide is a useful agent during gastroscopic examination in cases of spasmodic pylorus. It facilitates the passage of the gastroscope through the spasmodic pyloric sphincter. The reported relaxation and dilatation of the pyloric sphincter clarifies the amelioration of symptoms in different gastrointestinal troubles.

INTRODUCTION

Metoclopramide augments the frequency as well as the strength of the contractions of the antral and duodenal muscular wall, synchronizes antral and duodenal contractions (1) and relaxes the pyloric sphincter (2). Furthermore, metoclopramide increases the small intestinal motility (3) leading to rapid emptying of the stomach and increases the contraction of the gastrooesophageal sphincter. Metoclopramide, as a consequence of these effects, makes it easier to pass the gastroduodenoscope into the duodenum through the pylorus (2, 4, 5).

The aim of this study is to evaluate the effect of metoclopramide on the pyloric sphincter during gastro-duodenoscopic examination using a double blind technique versus placebo.

MATERIALS AND METHODS

The subject of this investigation is 31 patients varying in age between 20 and >70 (Table I), who showed pylorospasm on endoscopy. These patients were referred to the gastro-enterology unit of Falun Hospital suffering from different upper gastrointestinal disorders.

Besides pylorospasm the diagnosis in these patients was as follows: 11 dyspepsia with a normal endoscopic picture; 11 with erosions of the gastric mucosa; 5 gastric ulcers which were situated in the prepyloric region; 4 patients with small hiatus hernia. None of these patients exhibited central nervous system disease. The common manifestation in all of the 31 patients was pylorospasm which made the examination of the duodenum impossible.

A randomized controlled investigation was undertaken on all patients using metoclopramide (10 mg injected i.v.) and placebo. Before the injection the condition of the pyloric region was photographically registered every 30 sec for a minute after which the coded preparation was administered. The effect was consequently registered photographically for at least 10 min (Fig. 1 A–1 F).

The extent of pyloric relaxation was graded according to the following scale: 0=no effect or a very superficial insignificant change; 1=1–1.5 cm widening of the pyloric sphincter; 2=relaxation of the sphincter for more than 2.0 cm.

RESULTS

It was found after breaking the code that 15 patients were given the active preparation whereas 16 patients received placebo. Table II registers the grade of relaxation of the pyloric sphincter after injecting

Table I. Age distribution

	20–30	31–40	41–50	51–60	61–70	>70	Σ	Gs.
Primperan®	2	3	3	5	2		15	45.7
Placebo	2	1	6	3	3	1	16	48.9
Σ	4	4	9	8	5	1	31	47.3

Table II. *The grade of relaxation*

	Effect			Σ
	0 ^a	1	2 ^a	
Primperan®	7	1	7	15
Placebo	10	6	0	16
Σ	17	7	7	31

0=no effect; 2=relaxation of the sfincter for more than 2 cm.
 $\chi^2=11.08$, $p=0.996$.

the preparation whether metoclopramide or placebo.

The χ^2 -test showed a prominent, significant difference between the effect of the active preparation and placebo which resulted in dividing the patients into 3 groups. A group of patients who showed a very good response, those with a moderate response and those with no response.

DISCUSSION

Given intravenously, metoclopramide has a good effect on relaxing the spasmodic pyloric sphincter and is thus of help on endoscopic examination of the duodenal bulb and the duodenum in general.

However, it did not show any effect in some patients of whom 1 had diabetes mellitus with polyneuropathy, 4 with prepyloric erosive mucosal changes, 1 with a deformed gastric antrum and one was under treatment for depression.

The patients on whom relaxation of the pylorospasm was noted gastroscopically were treated with oral metoclopramide. The symptomatology in these patients was markedly ameliorated. This is expected since pylorospasm in these patients will disappear under treatment with metoclopramide. The result of treatment with metoclopramide will be the subject of further evaluation.

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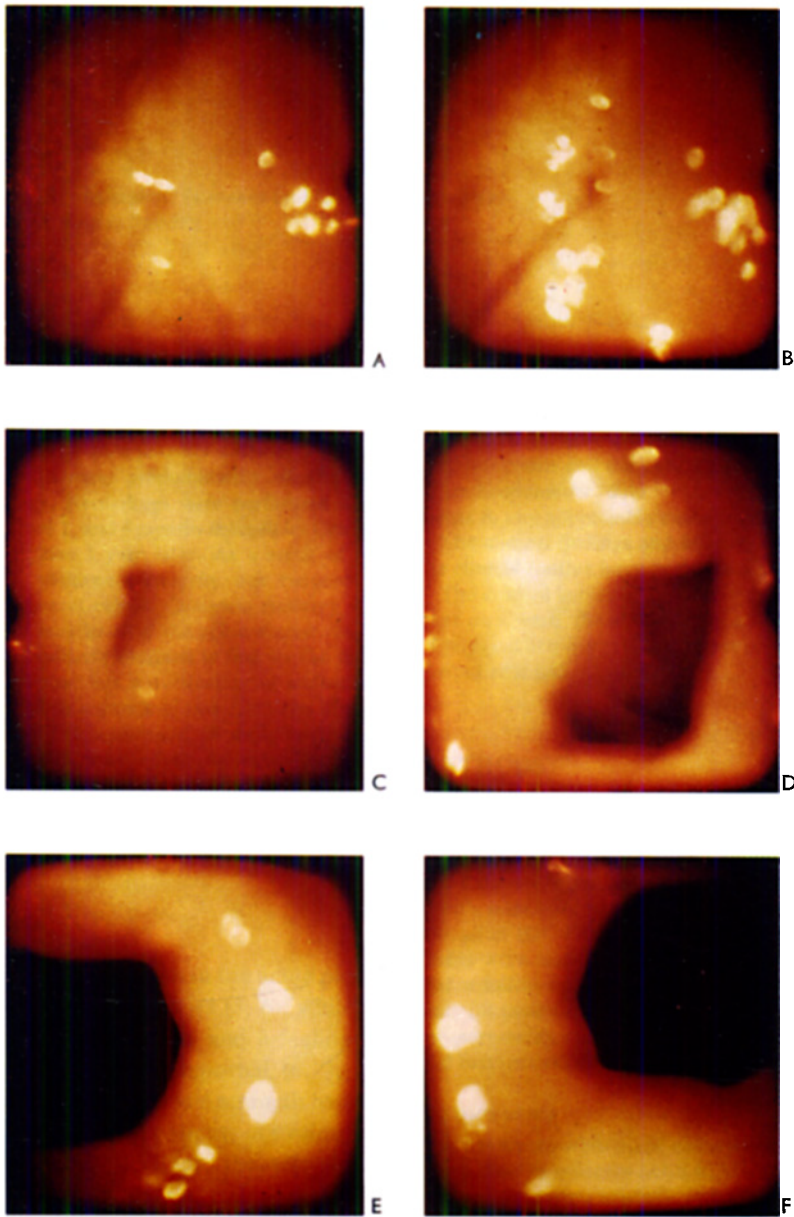


Fig. 1. A 42-year old male with long history of recurrent epigastric pain. Endoscopically pronounced pylorospasm. X-ray: no abnormalities. Very good relaxation of the pylorus 3 min after metoclopramide. Pictures taken at: 1 min before metoclopramide = A, B = at the start, C, D, E, and F = 1, 2, 3, 4 min respectively after metoclopramide injections.