

INVESTIGATION ON THE EFFECT OF APPLICATION OF MONOPOLAR ELECTROCOAGULATION FOR ENDOSCOPIC HAEMOSTASIS IN BLEEDING PEPTIC ULCERS

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ABSTRACT

The authors investigate the effect of application of monopolar electrocoagulation for endoscopic haemostasis in bleeding peptic ulcers. In group of 30 randomly selected patients with acute bleeding from gastroduodenal ulcers, classified after Forrest by Wirtz we apply endoscopic electrocoagulation. The authors reveal that the method of monopolar high-frequent diathermal coagulation in present days is not appropriate for the purposes of endoscopic haemostasis in acute bleeding from gastroduodenal ulcers.

Key words: acute bleeding, endoscopic haemostasis, monopolar high-frequent diathermal coagulation

INTRODUCTION

The monopolar electrocoagulation is part of the thermal contact methods for endoscopic haemostasis (4,7,8). During the monopolar electrocoagulation the current passes through the patient. In our days it is not recommended for endoscopic haemostasis because of the unpredictable depth of coagulation.

The aim of our study is to follow-up the results of the application of monopolar electrocoagulation in bleeding peptic ulcers.

MATERIAL AND METHODS

In a group of 30 randomly selected patients with acute bleeding from gastroduodenal ulcers classified after Forrest by Wirtz (12) we apply endoscopic electrocoagulation.

We used high-frequent diathermal coagulation, electrosurgical Olympus PSD-2E connection with the needed flexible fiber tips for contact electrocoagulation. During this electrocoagulation the current passes through the patient. The coagulation with high-frequent diathermal current damages the tissues and is serious threat for organ perforation especially for the bulbus wall, which is thinner than the stomach wall (3,5). We have noticed that in this type of haemostasis an amorphous coagulum and tissue with signs of burning are formed, which makes the method less reliable (9). Under clinical conditions this is demonstrated with reappearance of bleeding at violent removal of

the electrode from carbonized surface of the ulcer (10). The continuance of diathermal coagulation depends on the intensity of bleeding - as heavier is the bleeding, more continuously it should be affected with high-frequent diathermal current, so the danger of damaging the stomach wall is bigger. During the diathermal electrocoagulation of the stomach wall almost immediately serosa whitening is observed and the temperature doesn't increase till the moment of perforation (6).

Because of using contact fiber tips in this method the pressure intensity and penetrating depth can not be estimated, which increases the risk of perforations. The perforation becomes in 2 - 3 sec even at minimal pressure of the electrode to the tissue. Electrocoagulation shouldn't be tried at severe active bleeding because we do not know where the fiber tip goes in, where and what we coagulate. The coagulation itself produces large amount of energy which applied directly on the vessel leads to its destruction and uncontrolled bleeding (1,2,3,5).

RESULTS AND DISCUSSION

The distribution of these 30 patients with diathermal electrocoagulation in groups and subgroups classified after Forrest by Wirtz (12) was in this order: F1a - 9 (30%), F1b - 7 (23,33%), F2G - 5 (16,66%), F2g - 4 (13,33%), F2c - 5 (16,66%) (Table 1).

Only in 5 cases (16,66%) of total of 30 patients perforation occurs as follows: in 2 cases - immediately after the electrocoagulation, in 3 cases - after 12th hour. The low percentage (46,66%) of success (primary haemostasis), high percentage of recurrent bleeding (42,85%) and complica-

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tions (16,66% with perforation) allow us to define the and impossibility of dosing the biological effect, high per-

Table 1. Successful and unsuccessful electrocoagulation according to Forrest classification

Forrest classification	Number of patients - 30	Successful electrocoagulation	Unsuccessful electrocoagulation -operation	% successful electrocoagulation	% unsuccessful electrocoagulation
F1a	9	3	6	33,33%	66,67%
F1b	7	3	4	42,85%	57,15%
F2G	5	2	3	40,00%	60,00%
F2g	4	3	1	75,00%	25,00%
F2c	5	3	2	60,00%	40,00%
Total	30	14	16	46,66%	53,34%

method of diathermal electrocoagulation as unreliable in getting control of acute bleeding from gastroduodenal ulcers.

In prospective randomized trial of the Clinic of Gastroenterology, Coimbra University, Portugal (11) evaluation of effectiveness and safety was made for 5 different methods for haemostasis in selected patients with bleeding ulcers:

1. Injection therapy with pure alcohol (n=44)
2. Multipolar electrocoagulation (BICAP); (n=42)
3. Nd:YAG laser (n=40)
4. Injection therapy with pure alcohol + Ochteroid (n=42)
5. Injection therapy with pure alcohol + Omeprazole (n=40)

The results in these 5 groups are clinically and endosmotically comparable. The primary haemostatic success is more than 90% in each group. There is no significant difference between the control groups for each one of the following parameters during the hospitalization:

- a) recurrent bleeding (1=14,8%; 2=19,0%; 3=16,6%; 4=18,1%; 5=20,0%; $p>0,05$; average - 17,7%)
- b) definitive haemostasis (1=89,3%; 2=85,7%; 3=86,6%; 4=84,0%; 5=86,6%; $p>0,05$; average -86,5%)
- c) urgent operative intervention (1=8,5; 2=11,9%; 3=10,0%; 4=6,8%; 5=11,1%; $p>0,05$; average - 9,6%)
- d) lethality (1=4,2%; 2=4,7%; 3=3,3%; 4=13,6%; 5=4,4%; $p>0,05$; average - 6,2%)

The comparison of received data with these from other methods for endoscopic haemostasis allow us to conclude that, probably, diathermal electrocoagulation should be used in final occasions in lack of alternative methods for endoscopic haemostasis.

CONCLUSIONS

The highfrequent diathermal coagulation has a large number of disadvantages in comparison with the other methods for endoscopic haemostasis: necessity of contact influence

centage of complications (as perforation) and low percentage of success (46,66%).

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