International Journal of Surgery (2005) 3, 258–262

INTERNATIONAL JOURNAL OF SURGERY

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Comparison of electrotherapy of hemorrhoids and Ferguson hemorrhoidectomy in a randomized prospective study

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KEYWORDS
Electrotherapy;
Hemorrhoid;
Ferguson hemorrhoidectomy;
Post op pain

Abstract *Background:* Ferguson hemorrhoidectomy has been shown to be associated with significant amount of post-operative (post op) pain and complications. However, electrotherapy in which hemorrhoidal tissue is not excised might not be associated with severe complications.
Objective: Our aim was to compare the results of Ferguson hemorrhoidectomy with electrotherapy methods using 16 and 30 mA (milliampers) direct current (DC).
Methods: Four hundred and eight patients with symptomatic hemorrhoids, grades 1, 2 and 3, were randomly assigned into 3 groups. Group A (136 patients) underwent Ferguson hemorrhoidectomy, group B_1 (136 patients) and group B_2 (136 patients) were subjected to electrotherapy using 16 and 30 mA, respectively. The groups were compared in terms of duration of procedures, duration of hospital stay, post op pain severity and post op complications including recurrence, infection and non-healing ulcers.
Results: All patients in group A had severe pain for 7–14 days of post op. However, in group B_1, 88(65%) patients had mild pain during the treatment and 1st post op day; 28(21%) of them could not tolerate the operation; 20(15%) of them had mild pain and 10(7.5%) of them had moderate pain up to day 7. In group B_2, 47(35%) of patients had sever pain for 6 h and 20(15%) of them experienced mild pain for 2–7 days post op. The one day hospital stay in group A and group B_2 were 82 and 97%, respectively, while patients in group B_1 were treated as out patients. Mean procedure time for one hemorrhoidectomy in group A was 23 min, in electrotherapy using 16 and 30 mA was 9.7 and 6.1 min, respectively. The overall success rate with the first application in group B_1 was 57% and in group B_2 was 93%.

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1743-9191/$ - see front matter © 2005 Published by Elsevier Ltd on behalf of Surgical Associates Ltd.
doi:10.1016/j.ijsu.2005.09.002

Conclusion: Electrotherapy method using 30 mA DC could significantly decrease post op pain, operation time and hospital stay. This method had good success rate and very low post op complications compared to Ferguson hemorrhoidectomy and using 16 mA method. Therefore, due to its effectiveness, less pain, rapidity and safeness, we recommend it.
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Introduction

Symptomatic hemorrhoids are treated either medically or mechanically.[1–3] Medical therapy is commonly used for symptomatic hemorrhoids of grades 1 and 2, while mechanical therapy is used for grades 3 and 4 and grades 1 and 2 refractory to medical therapy. In mechanical treatment, the aim is to eliminate the hemorrhoids.[4,5]

In Ferguson hemorrhoidectomy, one of the most used mechanical therapies, the whole bundle including the venous plexus and the overlying mucosa is excised.[6] The procedure has been associated with severe post op pain and other severe complications such as post op bleeding, anal stricture and incontinence.[7–9] To avoid such complications, other methods such as direct current (DC) utilization were suggested.[10] However, the outcomes of DC utility were different due to the use of different apparatuses and amperages.[10–12] With the use of 16 mA DC the mean number of hemorrhoid segment's retreatment was reported as 2.22, 2.24, 2.76 and 3.44 for grade 1, 2, 3 and 4, respectively. Additionally, each segment needed 8–12 min of DC application. The outcomes of the method, which did not widely adopt were not uniform, ranging from 68 to 80%.[10–12]

In order to avoid complications of Ferguson procedure and low success rate of 16 mA DC utilization procedures, we designed the present study to investigate the utilization of 30 mA DC under general anesthesia.

Materials and methods

Patients and design

From February 1999 to September 2002, 408 patients with hemorrhoid grades 1, 2 and 3 who had not responded to medical therapy with symptoms of fresh rectal bleeding, itching or prolapsed were assigned randomly to 3 equal blocks. The patients all came from south of Iran and they were seen in colorectal clinic of Shiraz Medical University.

We excluded the patients who had other diseases of this site, like fissure, fistula and IBD. Systematic block randomization was used according the patient's number. The block 1 (group A) included 136 patients (82 male and 54 female) and were treated by Ferguson hemorrhoidectomy method. Block 2 (group B_1) consisted of 136 patients (74 male and 62 female) whom were subjected to electrotherapy using 16 mA DC. Block 3 (group B_2) consisted of 136 patients (76 male and 60 female) in whom electrotherapy using 30 mA DC was utilized. All patients were asked about suffering on days 1, 7 and 14 after procedure. The severity of pain classified according to numerical score as mild (1–3), moderate (4–7) and severe (8–10).

Procedures

Ferguson hemorrhoidectomy was performed under spinal or general anesthesia using standard surgical procedure. Care was taken not to excise more than 2 hemorrhoids in each session. Moreover, all wounds were sutured using 2-0 catgut.

Electrotherapy using 16 mA was preformed without anesthesia, whereas using 30 mA was done under spinal or general anesthesia. In these patients a changeable negatively-charged needle-like probe was inserted into the hemorrhoids for up to 1 cm.[13,21]

The positively-charged plate was placed under patient's buttock. In group B_1 patients, the current was increased gradually from 0 to 16 mA over 1 min. The duration of electrotherapy was maintained for 10 min or until gas bubbles from needle penetration site were ceased.[10,13] All patients except 2 of them tolerated the electrotherapy session. In patients undergoing electrotherapy using 30 mA DC (group B_2), the amperages were increased from 0 to 30 mA in seconds. The durations of electrotherapy for hemorrhoid grades 1–3 were 3.5, 4.5 and 6 min, respectively.[13,21]

Post op care and evaluation

Patients subjected to hemorrhoidectomy or electrotherapy using 30 mA were prescribed analgesic (meperidin, 50 mg IV). All patients were advised to take oral metronidazol (500 mg, 3 times per day) for 5 days. Moreover, all patients in the study

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