Effect of Perioprative Corticosteroids on Post Haemorrhoidectomy Morbidities

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ABSTRACT

Background: Although *some studies shows the effect of steroids on tissue trauma after haemorrhoidectomy, still more information is needed in order to evaluate the anti-inflammatory activity of steroids administeredto prevent and decrease pain and odema in patients who underwent haemorrhoidectomy.* ***Methods****: The study was performed on 40 patients, under general anaesthesia. Patients weredivided randomly into two groups (twenty patients in each group); the first group received a four 250 mg doses of methylprednisolone, the second group received a placebo. A verbal categorical scale was used to evaluate postoperative pain (for pain intensity, none = 0, mild = 1, moderate = 2 and severe = 3). Post-operative analgesia requirements (intra-muscular morphine sulphate)additionally, blood samples were taken for the evaluations of C-reactive protein(CRP), white blood cell (WBC) and erythrocyte sedimentation rate (ESR) on the same days. A secondary aim of the study was to determine if methylprednisolone would increase the incidence of postoperative wound complications.* ***Results****: Clinically and statistically significant difference was observed in the decrease of bothpain and oedema, between the placebo and corticosteroid groups,which is effective to prevent and to decrease both pain and oedema in haemorrhoidectomy. CRP was the most sensitive acute phase reactant among CRP, ESR andWBC. No complication was observed due to steroid usage.*
Keyword*: haemorrhoidectomy. Methylprednisolone, pain,*

INTRODUCTION

Hemorrhoids are the most frequent anal pathology, affecting an estimated 90% of the world population at least once in their lifetime **(1)**.

Hemorrhoids are caused by a descent of a part of the connective tissue of the anal canal where; the rectal mucosa prolapsed, pushing the internal hemorrhoids in an outward direction, thus causing the external hemorrhoids to protrude **(2)**. The most common causes associated with this condition are as follows: hereditary factors, constipation, increased intra-abdominal pressure **(3)**. Surgical treatment is performed using different techniques. They mainly involve the use of bipolar electrothermal devices, radiofrequency devices, circular stapler, and ultrasonic scalpel. Such techniques are considered the best options.

In terms of length of surgery and bleeding control**(4)**. New methods are suggested to reduce the morbidity occurs during the post-operative period in order to improve recovery, and minimize complications also reducing its costs due to prolonged hospitals stay **(5)**.

Haemorrhoidectomy is the procedure most often associatedwith significant postoperative pain. Postoperativepain and its management become factors in the patient'srecovery and the ultimate success of the procedure **(6)**. Attempts to reduce the length of inpatient stay have concentratedmainly on a reduction in postoperative pain**(7)**. Glucocorticoids are effective in reducing inflammation by block both the cyclooxygenase and the lipoxygenasepathway in the inflammatory chain reaction**(8)**.Corticosteroids have been studied for postoperative analgesic effects in oral surgery,general surgery, and orthopedic surgery **(9)**. A placebo-controlled study, reported that theuse of corticosteroid injection perioperative periodproduceda significant relieve in postoperative acute pain inhaemorrhoid operations **(10)**.

Concerns have been raisedabout the risk of postoperative wound complicationswhen steroid medication is administered to high-risksurgical populations. For outpatients undergoing anorectalsurgery, bacterial infection also interferes withwound healing **(11)**. But many

studies had concluded that the administration of corticosteroid , shortened the time to home discharge without increasing the incidence of postoperative wound infections in a patients underwent anal surgery [(12)]. In this study trial to find out the effectiveness of corticosteroids administration on post haemorrhoidectomy morbidities, especially on pain,oedema and urine retention.

MATERIALS AND METHODS

A prospective randomized placebo-controlled study was conducted at Kaser El-Ainihospitals Cairo University, betweenJanuary 2014 and May 2015. Consecutive adult patients ASAphysical status I-III adult suffering from symptomatic internal hemorrhoid disease (thirddegree non-respondent to medical treatment were eligible to be included in this study. Exclusion criteria were acutely thrombosed hemorrhoid, concurrent anorectal diseases such as anal fissure, inflammatory bowel disease involving rectum or anus, substance abuse, liver cirrhosis, and kidney dysfunction Patients whohad any contraindication against steroid those receiving chronic steroid therapywere excluded were excludedfrom the study.

Furthermore, the patients who had hemorrhoid treatments earlier, were not included in the study. The institutional review board and the ethics committee of our hospital approved the study. The study and all possible complications were explainedfor each patient, and a written informed consent was obtained from all the patients before enrollment.

In the current study, reduction of postoperative morbidity especially pain and urine retention and uneventfulhealing was considered as the main outcome. Sample Size Calculation with a power of 80% and a probability of type-1 error of 0.05, at least 20 patients were needed in each arm of the study to detect difference between both groups. Forty consecutive eligible patients were enrolled in this study for controlled randomization patients, doctor in charge of data collection, the investigator who assessed the outcomes, and the statistician who analyzed the data were not informed about the group allocation and the type of procedures, and were blinded to the study.

Operative Technique

All procedures were performed under general anesthesia with the same anesthesia protocol. Antibiotic prophylaxis was given by ceftriaxone and metronidazole. All surgery procedures were performed by only one expert attending surgeon. Patients were settled in lithotomy position and examined to determine hemorrhoid columns. For the evaluation of anti-inflammatory activity, C-reactive protein (CRP), erythrocyte sedimentation rate(ESR) and white blood cell count (WBC) were measured during the perioperative period.Quality of wound healing, and length of time until healing occurred. Complications such as urinary retention, bleeding, infection, and fecal impactions were monitored.

Statistical analysis

SPSS was used to compare data, parametric data were analyzed using unpaired' test and non-parametric data were analyzed using Mann – Whitney U test or chi-squared analysis was used for categorical variables. $P < 0.05$ was considered as significant. The sample size required in this study (n= 20 in each group).

RESULTS

Between January 2014 and June 2016, methylprednisolone was administeredto 16 female and 24 male patients between the ages of 22 and 57 years (mean age, 38±4.33 years). The mainindications for operation included the symptoms of pain (30%), bleeding (40%), protrusion (30%), recurrent acute attacks of piles, or combinations of these. twelve patients had grade III hemorrhoids and 18 patientshad grade IV hemorrhoids.The two study groups were comparable with respect to demographic characteristics there was not a statisticallysignificant difference between age, grade and Gender ($P \geq .05$). The mean length of the procedure was 28 ±4.2minutes for group B and 26± 5.1 minutes ($P \geq .05$).

Table 1

Parameter	Control	Dexamethasone	p value
Age (years)	15.14±7.97	12.04±4.69	*P*<0.05
M / F (no.)	15/30	21/24	*P*>0.05
Duration of Surgery (minutes)	28 ±4.2	26 ± 5.1	*P*>0.05
Grade III/IV	9/10	12/8	*P*>0.05

There were also no intergroup differences in the duration of surgery and anesthesia. The amount of narcotics consumed postoperatively wassignificantly less in the methylprednisolone group. Pain scoresin the methylprednisolone group were significantly lower (lesspain) than in the methylprednisolone group. Sincethe social and intellectual levelof the patients was not sufficient to understand the 0 to10 scale (visual analog scale), a verbal category of painscale was used (for pain intensity, none = 0, mild = 1,moderate = 2 and severe = 3). Pain scores using the verbal analog scale were significantlylower in the methylprednisolone group compared withthe control group on first, second and third day, postoperatively.One patientdeveloped acute urinary retention and required catheterizing in the control group and no one in the methylprednisolone group.

The rate of wound healing appeared similar in both groups.In both groups normal healing time was threeweeks. This did not prevent most patients from returningto their normal duties after one week, butsome patients complained of irritation and discomfortuntil healing was complete.

In methylprednisolone groups, CRP levels were lower than in the control group. Following surgery, CRP increased within in the first day and began to decrease after the third postoperative day. On the seventh postoperative day CRP data dropped to zero in the control but not in the steroid groups. There was no correlation between ESR, WBC and healing process and pain. In our study, CRP was the most sensitive measurement among CRP, ESR and WBC. Decreases in the pain scores were consistent with CRP levels, so it can be used as an indicator of anti-inflammatory response. No complications due to steroid usage in these doses and for this duration were observed during the 6 month follow up period

DISCUSSION

The gold standard for haemorrhoidectomy is the methodof excision and ligation describes by Milligan and Morgan in 1937. Since then this has remained the most common method of haemorrhoidectomy. However, thisprocedure is associated with significant post-operativepain. Haemorrhage, anal stenosis and fecal incontinenceare less common when the procedure is performed withcare. Numerous methods have been describes in an effortto reduce these complications in particular that of postoperativepain[13]. Chang *et al.* reported that intramuscular (dextromethorphan) given at the end of operation could provide good postoperative pain relief and decrease the pethidine requirement after haemorrhoidectomy [14]. The primary concern regarding the routine use ofcorticosteroids relates to the risk of increasing postoperative wound complications. Previous studies involvingthis patient population have suggested that theincidence of postoperative infection was in the rangeof 10–15%[15]. Some studies showed that, the incidence of infectious complications was only 8–10% despite the fact that 58–64% of the patients had preexisting medical conditions that might predispose them to surgical wound infections [16,17]. A subset analysis of the human immunodeficiency virus-seropositive patients receiving immunosuppressive therapy also failed to reveal any differences in postoperative outcomes. Therefore, a single-dose of corticosteroid does not appear to increase the incidence of infectious complications.[18].

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