

## Effects of Warm Water Sitz Bath on Post-Hemorrhoidectomy Symptoms

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### Abstract

**Background:** Hemorrhoid is considered one of the biggest problems all over the world. Hemorrhoidectomy is the most effective treatment method for advanced stages hemorrhoids.

**Aim of the study:** To evaluate the effects of warm water sitz bath on post-hemorrhoidectomy symptoms. **Patients**

**and Methods:** Research design: Prospective randomized controlled trial. Setting: General Surgery Wards and Outpatient Clinics of General Surgery at Assiut University Hospital. Sample: A random sample of 60 adult patients with hemorrhoids (grade III or IV) that did not respond to conservative treatment and consequently had undergone hemorrhoidectomy. Patients were randomly assigned to study group and control group, 30 patients for each group. Tools: Tool I: Patient assessment sheet; Tool II: Symptoms assessment sheet. **Results:** A significant improvement in the level of pain and anal burning during the 4 weeks follow-up period that was more apparent in the study group than in the control group ( $p < 0.01$ ). A noticeable improvement of anal itching was found in both groups but it was higher in the study group more than the control one; however, it reached a statistically significant level at the third and fourth week. Wound healing was higher among the study group when compared with the control group.

**Conclusion:** Warm water sitz bath had a statistically significant effect on improvement of post-hemorrhoidectomy pain, anal burning, and anal irritation. Also, wound healing was improved but it did not reach a statistically significant level.

**Recommendation:** Using sitz bath as a safe method to promote hygiene and comfort after hemorrhoidectomy.

**Key Words:** Sitz bath, Hemorrhoidectomy, Symptoms

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### I. Introduction

Hemorrhoidectomy is the surgical excision of the hemorrhoid; it is used primarily in severe cases or to treat patients who fail to respond to non-operative treatments. Hemorrhoidectomy is the most effective treatment method for hemorrhoids especially in patients with third or fourth degree hemorrhoids (Karanlik et al., 2009).

Hemorrhoidectomy is associated with significant postoperative pain and usually requires 2–4 weeks for recovery. The pain is thought to arise from surgical trauma and the associated inflammatory response resulting from the spasm of the internal anal sphincter. Additionally, the intensive sensory neural network within the perianal and anodermal regions may contribute to perception of pain (Lorenzo-Rivero, 2009 and Amoli et al., 2011).

Warm water sitz bath is frequently recommended by most physicians in a variety of disorders, including anorectal diseases and gynecologic conditions. Several specialties, including rectal and colon surgery, obstetrics and gynecology, urology, cancer therapy, and family medicine advise patients to use sitz bath to relieve pain and promote healing of the wound (Tejirian and Abbas, 2005).

After hemorrhoidectomy, in addition to analgesics used for postoperative pain control, sitz bath is commonly used for pain management as a safe method to clean and relieve pain in the wounds on the anal sphincter. It is recommended to decrease itching, pain and discomfort associated with hemorrhoidectomy (Gupta, 2007 and Boyden et al., 2011).

The use of water for various treatments is probably as old as mankind. Hydrotherapy is one of the basic methods of treatment widely used in the system of natural medicine. Use of water in various forms and in

various temperatures can make different effects on different body system. It is one of the naturopathic treatment modality used widely in ancient cultures including India, China, and Egypt (**Moventhan and Nivethitha, 2014**).

Painful defecation and wound pain are often found in patient with hemorrhoidectomy. This pain could be relieved by sitz bath and warm-water washes. So, detailed education and instructions about sitz bath and anal washing are important nursing interventions (**Yeun et al., 2016**).

### **Significance of the study**

According to Assiut University Hospital records (2017), 270 patients with hemorrhoids (grade III or IV) underwent hemorrhoidectomy. In Egypt there is a high incidence rate of hemorrhoid, that it is considered one of the most frequent diseases of the anal region with high prevalence (nearly 50% of proctological visits in a colorectal unit) (**Nakeeb et al., 2008**). Also, from the researchers' experiences, it was observed that most of those patients complained from post-hemorrhoidectomy symptoms (anal pain, burning and itching). Therefore this study was conducted to help such group of patients to increase their knowledge about warm water sitz bath in an attempt to decrease their post-hemorrhoidectomy symptoms (anal pain, burning and itching).

### **Aim of the study**

To evaluate the effects of warm water sitz bath on post-hemorrhoidectomy symptoms.

### **Research hypothesis**

Post-hemorrhoidectomy symptoms will be improved in the study group patients than in the control group patients.

### **Operational definition**

Post-hemorrhoidectomy symptoms: Included pain, burning, and itching in the anus.

## **II. Patients and Methods**

### **Research design:**

Prospective randomized controlled trial.

### **Study variables**

The independent variable was the warm water sitz bath, while the dependent variables were pain, burning, itching in the anus and wound healing.

### **Setting:**

The study was conducted in the General Surgery Wards at Assiut University Hospital, Egypt.

### **Sample:**

A random sample of 60 adult patients who had been diagnosed with hemorrhoids (grade III or IV) that did not respond to conservative treatment and consequently had undergone hemorrhoidectomy, age ranged from 18 to 65 years, and both male and female were included in this study. Patients were randomly assigned to post-hemorrhoidectomy sitz bath (study group) or routine hospital care (control group), 30 patients for each group. The researchers put small piece of paper numbered from 1-60 (number of sample) into a package. The patients asked to choose one piece of paper from the package (this was the patient's number). Double numbers included in the study group while single numbers included in the control group.

**Exclusion criteria:**

- Fistula or fissure.
- Anal or rectal malignancy.
- Inflammatory bowel disease.

**Tools:**

**Tool I: Patient assessment sheet:** This sheet was developed by the researchers, it consisted of two parts:

**Part 1: Demographic data:** It included demographic characteristics of the studied patients as: name, age, sex, marital status, occupation, levels of education, and residence.

**Part 2: Medical data:** It included medical diagnosis, duration of the disease and wound healing.

**Tool II: Symptoms assessment sheet:** This sheet was developed by the researchers after reviewing different literature to assess post-hemorrhoidectomy symptoms, it consisted of two parts:

**Part 1: Numeric Pain Rating Scale:**

It is one of the commonest assessment tools for quantifying intensity of pain. This scale does not require the patient to write or use a ruler. Patient provides a verbal response which the healthcare provider can then document. It is extremely easy to administer and score, so it can be used with a greater variety of patients. It is useful for telephone assessments. Also, it shows sensitivity to treatments that are expected to have an impact on pain intensity. It is a valid scale and demonstrates significant correlations with other pain intensity measures (**Paice and Cohen, 1997**). It is adopted by the researchers in this study for monitoring of post-hemorrhoidectomy pain.

**Scoring system:** It is 11 point scale which involves asking the patient to rate his or her pain level from 0 to 10 with the understanding that 0 is equal to no pain and 10 is equal to worst possible pain.

**Part 2: Verbal rating scale:**

It consists of a list of adjectives describing different levels of pain intensity. It was adopted by the researchers in this study for assessment of post-hemorrhoidectomy anal burning (described as burning sensation in the anus immediately after defecation) and anal itching. Patients are asked to read over the list of adjectives and select the word or phrase that best describes their level of anal burning and itching on the scale. It is a valid scale and also demonstrates sensitivity to treatments that are known to have an impact on pain intensity (**Turk and Melzack, 2001**).

**Scoring system:** It is a 4 point scale. Each symptom was allocated a score from 0 to 3 (0 = no symptoms, 1 = mild, 2 = moderate, 3 = severe intensity).

**Ethical considerations**

Permission to carry out this study was obtained from the ethical committee of Faculty of Nursing and from the hospital authorities of General Surgery Wards at Assiut University Hospital. Oral agreement of the patients for voluntary participation was obtained. Anonymity and confidentiality were assured through coding of the data. The patients had the right to refuse the participation in this study and can withdraw at any time.

**Content validity and reliability**

It was established by a panel of five experts (Three expertise from Medical-Surgical Nursing staff and two expertise from the General Surgery staff) who reviewed the tools for clarity, relevance, understanding, and applicability. Test reliability was ascertained with Cronbach's alpha = 0.88.

### **Pilot study**

It was applied on 10% of the sample, to ensure clarity and applicability of the tools. No modifications were done to the tools, so the sample of the pilot study was included in the study sample.

### **Treatment protocol**

Postoperative treatment protocol for the study group was similar to the control group; it involved antibiotic, analgesic, and stool softener (if needed). However the study group performed warm water sitz bath.

### **Procedure of the sitz bath**

Patients in the study group were instructed to sit in a warm water tub (the water temperature was like what patients favor for a whole body bath) with only the buttocks and hips immersed for 10 minutes where, immersing other parts of the body in warm water is forbidden, as it could lead to systemic vasodilatation and decrease circulation to the perineal area. Patients are also cautioned against using too hot water, as there are reports of perianal burns following sitz bath (**Kahraman et al., 2004**). Nothing was added to the warm water used for sitz bath. Patients were usually discharged on the first or second postoperative day, unless other clinical indications prevented this. Patients began sitz bath in the home immediately after removal of the hemostatic dressing. Sitz bath sessions were performed 3 times daily, one time after defecation, one time just before bedtime, and another one at any time during the day for a period of 4 weeks.

### **Diet**

Study group patients also instructed to take a fiber rich diet containing a high content of fruit and vegetables. Also high fluid intake was advised.

### **Procedure:**

The current study proceeded using the following three phases:

#### **Assessment phase:**

The researchers met the selected groups of patients (study and control) preoperatively; each patient from both groups was fully informed with the aim and nature of the study and the patients' agreements were obtained. Patients' assessments were established to collect the base line data.

#### **Implementation phase:**

- The study group was given a complete explanation about the sitz bath procedure by the researchers on an individual basis; each patient was met for one session. Each session took about 30-40 minutes. The study was carried out in the morning and afternoon shifts.
- One family member was present in the session to ensure patient support.
- Patients were instructed on the correct way to perform sitz bath. Specific instructions for appropriate use of the sitz bath were given by the researchers such as the water temperature, the duration and the localization of immersion to avoid the risk of burns and systemic vasodilatation.
- A brief review was done and the researchers clarified any points that the patient did not understand.
- The sitz bath procedure was carried out throughout a period of one month for the study group only while the control group received the routine hospital care.
- The researchers arranged with the patients in both study and control groups the time and place for follow up which were weekly by the telephone (to avoid patients' exhaustion specially that the highest percentage of the study sample are from rural areas) and after one month in the Outpatient Clinics of General Surgery at Assiut University Hospital.
- The researchers ensured commitment of the study group patients to perform the sitz bath procedure correctly by telephone weekly.
- Data were collected through the period from the beginning of August 2017 to the end of April 2018.

**Evaluation phase:**

Post-hemorrhoidectomy symptoms in the study and control groups were evaluated at 1, 2, and 3 weeks postoperatively by telephone and at the end of the 4 weeks in the Outpatient Clinics of General Surgery to evaluate post-hemorrhoidectomy symptoms, in addition to examining the wound healing (complete healing means full epithelization). Both study and control groups attended the follow-up sessions. The session took approximately 15 minutes.

**Statistical analysis**

The data tested for normality using the Anderson-Darling test and for homogeneity variances prior to further statistical analysis. Categorical variables were described by number and percent (No., %), where continuous variables described by mean and standard deviation (Mean, SD). Chi-square test and fisher exact test used to compare between categorical variables where compare between continuous variables by Mann-Whitney test. A two-tailed  $p < 0.05$  was considered statistically significant. Spearman Correlation used to appear the association between scores. All analysis performed with the IBM SPSS 20.0 software.

**III. Results**

**Table (1): Frequency distribution of demographic characteristics of the studied groups (study and control)**

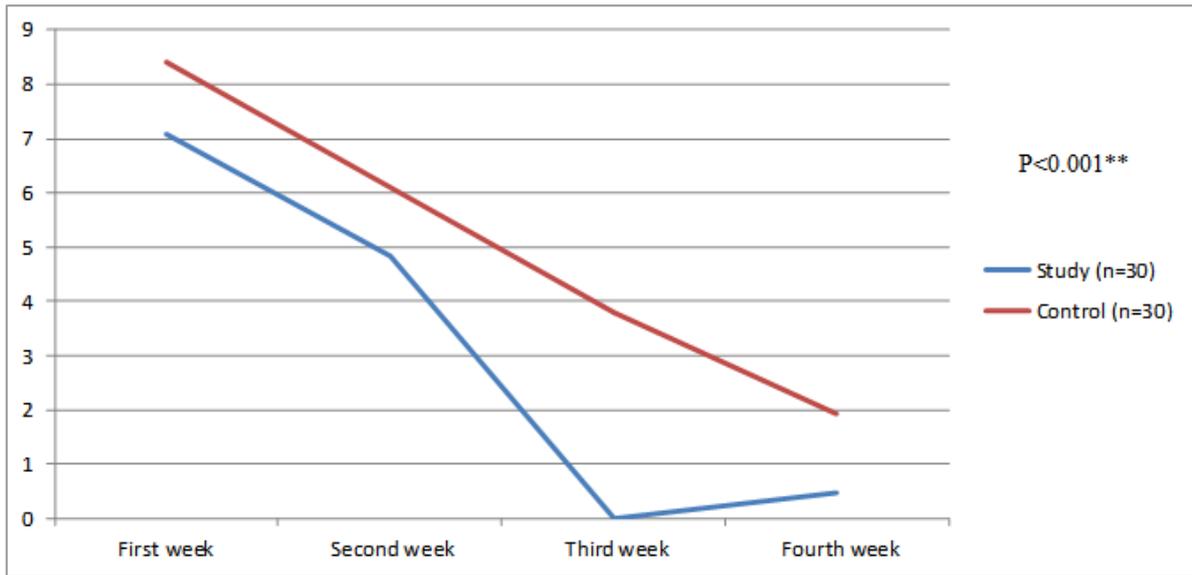
Characteristics	Study (n=30)		Control (n=30)		P. value
	No.	%	No.	%	
<b>Age group</b>					
18 < 25 years	10	33.3	10	33.3	0.631
25 < 35 years	10	33.3	7	23.3	
35- 65 years	10	33.3	13	43.3	
<b>Mean±SD (range)</b>	32.27±10.9 (18-47)		35.93±13.81 (20-65)		
<b>Gender</b>					
Male	24	80.0	27	90.0	0.278
Female	6	20.0	3	10.0	
<b>Occupation</b>					
Employee	4	13.3	13	43.3	0.086
Farmer	5	16.7	4	13.3	
Housewife	5	16.7	1	3.3	
Skilled worker	15	50.0	11	36.7	
Student	1	3.3	1	3.3	
<b>Marital status</b>					
Single	16	53.3	17	56.7	0.795
Married	14	46.7	13	43.3	
<b>Educational Level</b>					
Illiterate	20	66.7	4	13.3	0.001**
Primary	3	10.0	4	13.3	
Preparatory	0	0.0	1	3.3	
Secondary	6	20.0	16	53.3	
University	1	3.3	5	16.7	
<b>Residence</b>					
Urban	3	10.0	6	20.0	0.278
Rural	27	90.0	24	80.0	
<b>Duration of the disease</b>					
≤ 2 years	22	73.3	18	60.0	0.273
> 2 years	8	26.7	12	40.0	

Chi-square test

\*\*Significant difference at  $p < 0.01$

Table 1 reveals that the mean age of both study and control groups patients was (32.27±10.9 and 35.93±13.81, respectively). The highest percentages of them were male, single, from rural area and the duration of their diseases did not exceed 2 years (80% and 90%), (53.3% and 56.7%), (90% and 80%), and (73.3% and 60%) respectively. No statistically significant difference was found between the both groups regarding the demographic data except only in the educational level.

Figure (1): Comparison between mean pain scores among the study and the control groups during the 4 weeks follow-up period



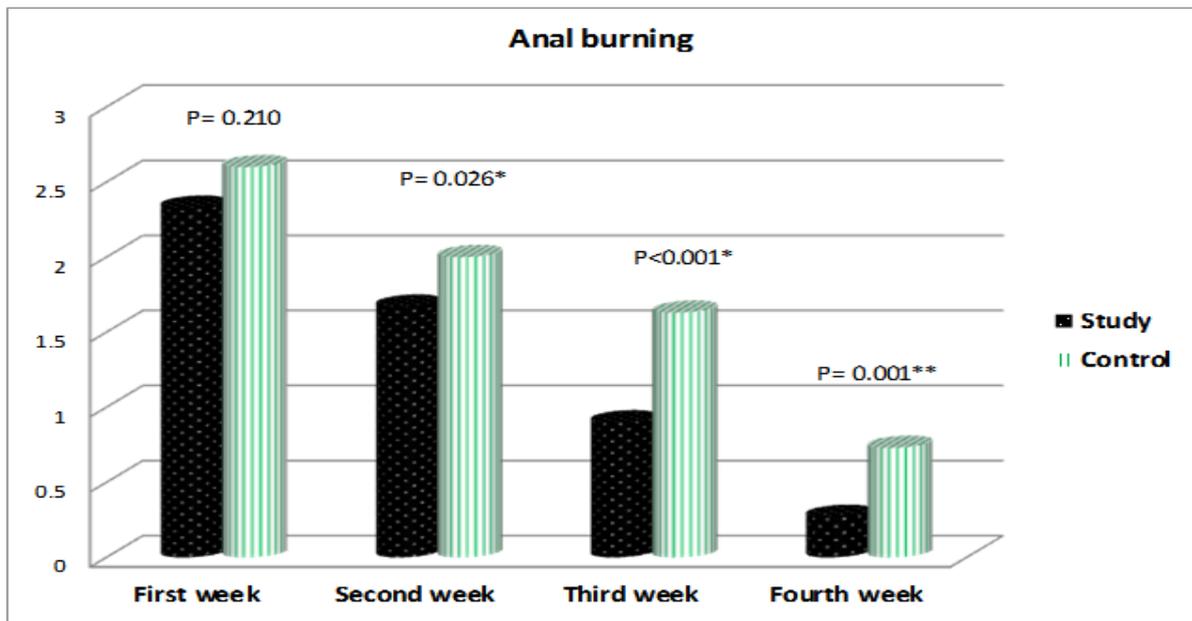
Mann-Whitney test

\*\* Significant p < 0.01

Figure 1 shows that there was an obvious significant improvement in the level of pain during the 4 weeks follow-up period that was more apparent in the study group than in the control group (p<0.001).

P<0.001\*\*

Figure (2): Comparison between anal burning among study and control groups during the 4 weeks follow-up interval



Mann-Whitney test

\* Significant p<0.05

\*\* Significant p<0.01

Figure 2 shows that a marked decrease in the anal burning was found in both groups during the 4 weeks follow-up period. However, it was significant in the study group compared with the control group (p<0.01).

Figure (3): Comparison between anal itching among study and control groups during the 4 weeks follow-up interval

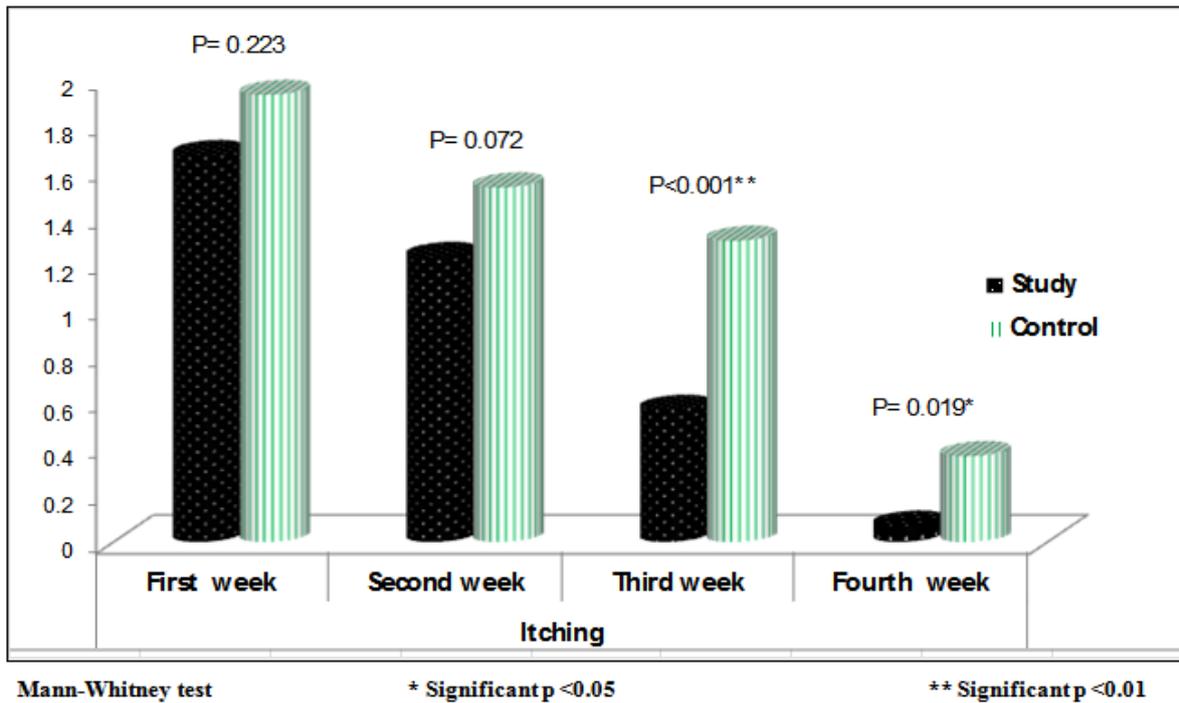
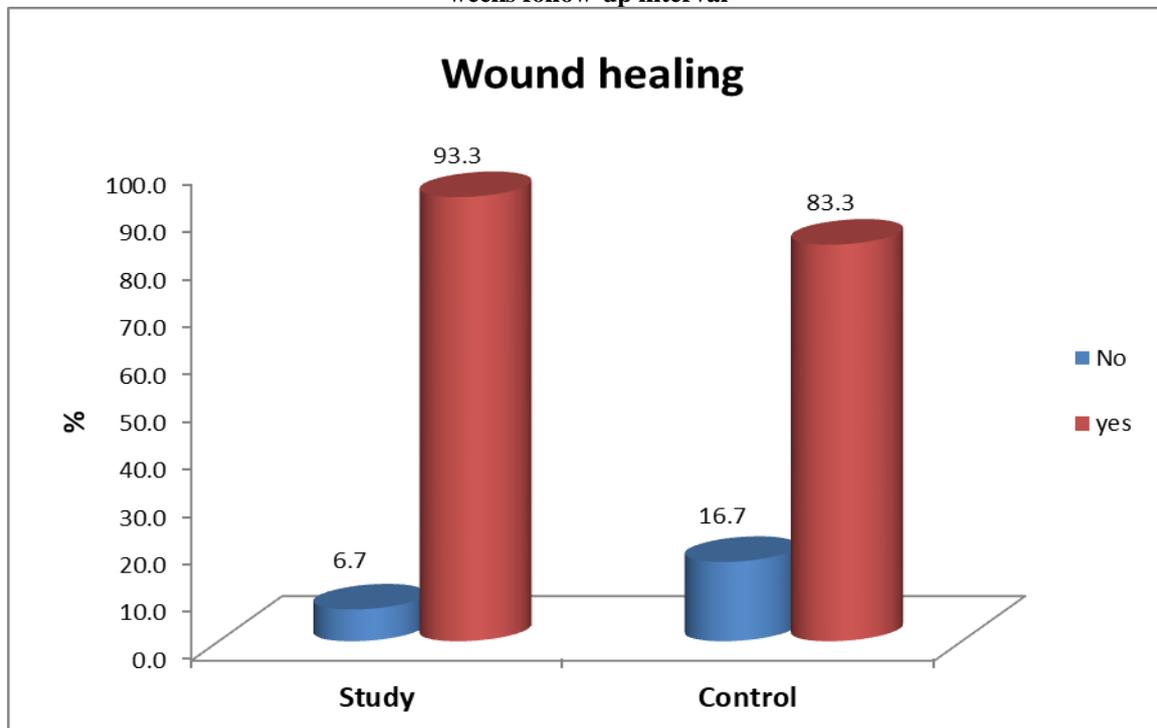


Figure 3 demonstrates that a noticeable improvement of anal itching was found in both groups but it was higher in the study group more than the control one, however, it reached a statistically significant level at the third and fourth week.

Figure (4): Frequency distribution of wound healing among study and control groups at the end of the 4 weeks follow-up interval



Chi-square test

Figure 4 illustrates that the wound healing was higher among the study group when compared with the control group (90.3% and 83.3, respectively), but, it did not reach a statistically significant level.

**Table (2): Correlation between pain score, anal burning, and anal itching among study and control groups during the 4 weeks follow-up period**

	Pain			
	Study (n=30)		Control (n=30)	
	r	p	r	p
<b>First week</b>				
Burning	0.894	0.0001**	0.227	0.227
Itching	0.842	0.0001**	0.084	0.657
<b>Second week</b>				
Burning	0.420	0.021*	0.790**	0.0001**
Itching	0.304	0.102	0.672	0.0001**
<b>Third week</b>				
Burning	0.440	0.015*	0.588	0.001**
Itching	0.279	0.135	0.623	0.0001**
<b>Fourth week</b>				
Burning	0.809	0.0001**	0.755	0.0001**
Itching	0.522	0.003**	0.605	0.0001**

\* Statistically significant correlation  $p < 0.05$

\*\* Statistically significant correlation at  $p < 0.01$

Table 2 reveals that a positive correlation was found between pain score, anal burning, and anal itching in both study and control groups.

#### IV. Discussion

Hemorrhoid is considered one of the biggest problems all over the world that hinders patients' abilities to live normally and work effectively (Ali et al., 2011). The condition affects 40–50% of the population at one point in their lives and in most countries approximately 4% of the population requires hemorrhoidectomy (Geçim et al., 2017).

Regarding demographic characteristics, the present study showed that the largest percentages of both study and control groups were below 35 years of age and were males. This result agreed with Ravindranath and Rahul (2018) who studied the prevalence and risk factors of hemorrhoids, they found that the most common age group affected with hemorrhoids was under 40 years of age and a preponderance of males was seen in compared to females. This also was in concordance to the study by Ali and Shoeb (2017) who reported that the maximum incidence of hemorrhoids was in the age group of 20-29 years and also male preponderance was observed.

On the contrary Khan et al. (2015) reported that prevalence of hemorrhoid was higher in the age group above 40 years of age than those below. Also, Ali et al (2011) added that hemorrhoid affected females than males.

Regarding the duration of the disease the current study revealed that the highest percentages of both study and control groups the duration of their diseases did not exceed 2 years. Hsu et al. (2009) were in the same line with the current study, they found that the duration of the disease in both study group and control group was about 2 years. On the other hand Al-Mulhim et al (2006) conducted a randomized study about post-hemorrhoidectomy pain they found that the duration of the disease of the studied sample exceeded 2 years.

As regard the effect of sitz bath on the post-hemorrhoidectomy pain, the present study showed that there was an obvious significant improvement in the pain level during the 4 weeks follow-up period that was more apparent in the study group than in the control one. From the researchers point of view this is because of warm sitz bath could help to relax the anal sphincter, hence reducing pain. Also, a continuous follow-up of study group by the researchers to ensure commitment of the patients to implement the recommended instructions about fiber rich diet, high fluid intake to avoid constipation, and sitz bath procedure including the temperature of the water at which they are to be taken, the depth and circumference of the tub to be used, frequency and duration of sitz bath.

In this regard Younis et al (2013) reported that by improving the quality of patient information for hemorrhoidectomy, patient satisfaction was higher and fewer patients sought medical attention and they felt less need for a routine follow-up. Also, Gupta (2006) added that patients should be given specific instructions on

how to correctly carry out sitz baths, including the temperature of the water at which they are to be taken and the depth and circumference of the tub to be used.

Congruent with the current study Shafik (2000) found that warm sitz bath could help to relax the anal sphincter. He observed that warm water sitz bath led to a longer duration of low internal sphincter pressure, therefore reduce pain. Similarly, Jiang et al (1999) found that local thermal application in the gluteal area results in relaxation of the internal anal sphincter through the somatoanal reflex that is even more obvious in patients with painful conditions such as hemorrhoids.

Balta et al. (2015) supported the results of the current study, they conducted a study to evaluate the effect of warm plastic bags application on post-hemorrhoidectomy pain; their results showed that the warm bags reduced the need for analgesics and decreased pain during the early postoperative period, so it appears to be a safe and effective method for pain relief after hemorrhoidectomy. Furthermore, Tejirian and Abbas (2005) and Park et al. (2010) reported that warm water bath after certain gynecological and urological procedures is a safe and effective method both for pain control and to accelerate healing.

Contrary to the current study findings Lang et al. (2011) did not find strong evidence to support using of sitz bath for pain relief or to accelerate wound healing among adult patients with anorectal disorders. So, the use of the sitz bath is limited only to patient satisfaction.

As regard post-hemorrhoidectomy anal burning and itching, the present study showed that significant statistical improvements were found among the study group patients when compared with the control one. Also, wound healing was higher among the study group than the control group but it did not reach a statistically significant level. This could be attributed to the effects of sitz bath which helped in improving anal hygiene through cleaning up any remaining irritating fecal matter. Also, it helped in improving blood circulation in the anal region. All these actions made sitz bath to acts as a counter irritant, which result in relieving the sense of post-hemorrhoidectomy anal burning and irritation and improved wound healing with a positive correlation between pain score, anal burning, and anal itching.

Congruent with the results of the present study Gupta (2007) investigated the effects of warm water sitz bath on symptoms in post-anal sphincterotomy, they concluded that the apparent advantages of the sitz bath included improvements in hygiene, relief of discomfort such as anal burning, anal itching, and wound healing. Also, Lara-Torre et al. (2004) added other positive advantages of sitz bath included limiting infectious disease and preventing sepsis following surgery.

In this regard Oladokun et al. (2000) suggested that sitz baths improve wound healing by keeping the temperature warm and promoting vasodilation, which improved the anal circulation. From this point of view, postoperative care with warm water sitz bath might have the benefit of preventing inflammation and scar formation.

Similarly, Dubey and Dixit (2015) performed a study to find out the significance of sitz bath in post-hemorrhoidectomy period. After one month, wound healing was (93%) in sitz bath group, and (89%) in no sitz bath group, they concluded that sitz bath had a minimal effect on postoperative wound healing.

Finally, McConnell (1993) stated that most physicians, including colon and rectal surgeons, recommend the sitz bath for relieving pain in the perineal region and for promoting wound healing. Thus, the sitz bath is routinely used during the post-hemorrhoidectomy period.

## **V. Conclusion**

Warm water sitz bath had a statistically significant effect on improvement of post-hemorrhoidectomy pain, anal burning, and anal irritation. Also, wound healing was improved but it did not reach a statistically significant level.

### Recommendations

1. Using sitz bath as a safe method to promote hygiene and comfort after hemorrhoidectomy.
2. Simple illustrated guidelines about how to correctly carry out sitz baths should be available in General Surgical Wards. It should be instructed and supported by a nursing staff.
3. Further studies on larger sample from different geographical areas in Egypt to generalize the results.

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