



COMPARISON STUDY BETWEEN USE OF RAZOR BLADE SHAVING VS USE OF DEPILATION CREAM FOR PRE OPERATIVE SKIN PREPARATION

General Surgery

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ABSTRACT

Skin preparation before any surgery is important for decreasing skin commensals which can be done either by shaving, washing or chemical disinfectant. The aim of doing so is to decrease the microorganisms at the surgical site and hence reduce chances post op surgical site infection. A prospective randomised study was conducted on 60 patients to compare the effect of razor shaving vs the use of depilatory creams in the pre operative skin preparation. The use of depilatory creams was found to be more effective, atraumatic, non toxic. If possible, hair removal should not be practiced unless it is interfering with the surgical procedure or with wound closure. If hair removal has to be done, depilatory cream should be the preferred option. The depilatory cream has an advantage over shaving in the areas where shaving can be difficult.

KEYWORDS

pre operative, shaving, depilation cream, surgical site infections

INTRODUCTION

The aim of skin preparation prior to surgery is to decrease the microorganisms at the surgical site preventing surgical site infections and hence prevent/ reduce the postoperative hospital stay. Skin preparation before surgery is important for significantly reducing the surgical site infection, which can be done either by shaving, washing or chemical disinfectant. Traditionally, preparation for surgery included the routine removal of body hair from the intended surgical site. Hair removal is done as presence of hair can interfere with the incision, suturing of the wound, and can also cause difficulty in the application of adhesive compression drapes and dressing of the wound. And also removal of hair is thought to reduce the risk of surgical site infections (SSIs). According to a survey, around 10% of patients in the United Kingdom experience SSIs each year [1] and they can result in delayed wound healing, prolonged hospital stay, pain over the surgical site and in severe/ extreme cases can also result in death of the patients due to sepsis. Still there are studies that claim that hair removal pre operatively can be deleterious to patients in some cases and hence should not be done [2].

Depilatory creams can be used for pre operative patients with the advantages that it produces clean skin with no risk of breach or abrasions/ cuts in the skin that it produces an intact skin. But caution has to be taken as it can cause minor skin irritation or a rash. The effects of the cream may vary, depending on the strength, colour and coarseness of the hair which has to be removed as well as on the time duration the cream is left undisturbed/ untouched on the hair. Studies show that SSIs rates to be 2.9% when removing hair with shaving vs 0.6% in patients where depilation creams were used to remove hair [3].

REVIEW OF LITERATURE

Two studies comparing depilation creams and shaving, are as follows: Adisa et al. [4] found that using razor is significantly associated with post-operative wound infection, whereas Suvera et al. [5] did not find any difference between removal of hair pre-operatively by razor or depilation cream and surgical site infection. Tanner et al. (2009) conducted a study in 11 patients. They comment insufficient evidence of an effect of preoperative hair removal on rates of SSIs and of the relative effects of shaving and depilatory cream. If it is necessary to remove hair then depilatory cream result in fewer SSI than shaving with a razor [6].

Seropian and Reynolds observed a decrease in the infection rate when hair was removed using depilatory cream. [7] Cruse and Foord reported a wound infection rate of 0.9% without any hair removal, 1.7% when hair had been clipped, and 2.3% after shaving. [8]

A prospective, randomised study of pre-operative shaving versus depilation on wound infection in 253 patients conducted by Thur de Koos showed that there was no statistical difference between the two methods. But the use of depilatory creams saved time [9].

AIMS AND OBJECTIVES

To do a comparative study between the use of razor blade shaving vs the depilation creams for pre operative preparation of surgical patients in a tertiary health care centre.

MATERIALS AND METHODS

A prospective randomised study, after getting the ethical approval, was conducted on 60 patients; in which 30 patients were in group A (razor blade shaving method was used) and 30 patients were in the group B (depilation cream was used). Informed consent was taken from all the patients included in the study. Patients were randomly categorised into A and B group. A day prior to the application of the depilation cream, a small discrete area in the body was tested with the depilation cream which was used in the study to see for any allergic reaction (hypersensitivity test). Patients who developed any skin rash or irritation on the test site were excluded from the study.

INCLUSION CRITERIA

- 1) Age > 18 years of age.
- 2) Both sexes.
- 3) All the patients planned for Breast, abdominal, Thyroid surgeries.
- 4) Intact skin.

EXCLUSION CRITERIA

- 1) Age < 18 years.
- 2) Face surgeries.
- 3) Allergic reactions to the depilation cream.

The depilation cream should be applied evenly over the area to be prepared and it has to be left undisturbed for the recommended period of time limit which is usually 10 mins. This procedure should be done one day prior to the surgery.

After the recommended time is over, the cream is removed with a clean damp cloth and it should be done in the direction of the hair growth. After the complete hair removal is done, the skin has to be rinsed and cleaned thoroughly to remove the residual cream remnants. The cream SHOULD NOT be applied over the cuts or minor abrasions, scratches or on the sunburned areas.

Post operatively patients were followed up till their discharge for any

surgical site infection. Patient's postoperative wound was inspected for signs of infection or inflammation like purulent discharge over the surgical site or any sign of wound gaping were noted. Patients were asked to review back.

RESULT

The results were compared based on the effectiveness of both the methods which was determined by their adequacy of removing hair and if any skin injury caused by any of the methods.

1. Effectiveness according to the adequacy of hair removal

	Razor shaving	Depilatory cream	Total
Hair removal			
1. Complete	23 (76.6%)	28(93.3%)	50
2. Incomplete	7(23.3%)	2(6.6)	10
Total	30	30	60

2. Comparison based on the skin injuries:

	Razor shaving	Depilatory cream	Total
No injury	25(83.3%)	30(100%)	55
Minor injuries*	5(16.6%)	0	5
Total	30	30	60

* Minor injuries - abrasion, cuts in the skin.

As concluded from the results, complete hair removal was significantly associated with the depilatory cream group (93.3%; with p value of <0.0009) in comparison to the razor blade shaving group. Similarly, the depilatory cream group had significantly no injuries (100% result for no injuries; p value <0.0002) whereas in razor blade shaving group 5 patients (16.6%) suffered with minor cuts or skin Abrasion. Comparing other factors between the two, the time consumed for depilatory creams was standard 15 minutes (10 mins to keep the cream and 5 mins for removing the cream) whereas for razor blade shaving it was 20 to 25 mins depending on the skills of the person doing; indicating that time was less consumed in using depilatory cream (p<0.0001). The cost of razor blade was Rs. 20 (significantly less in comparison to the other group) whereas for depilatory cream it was 120; with a significant difference of p<0.0001. 3 patients from the group A (razor blade shaving) developed Surgical Site infections and none developed SSI from the depilatory cream method group.

DISCUSSION

The effect of pre operative skin preparation by razor shaving and its incidence in post op wound infections is well documented in literatures. Post operative wound infection is a very serious complication. Many strategies have been suggested to decrease the incidence of such infections. Some of which include the use of prophylactic antibiotics prior to the incision, maintaining proper aseptic precautions in the operating room, surgical skin preparation, improved surgical skills.

Traditionally shaving with blade or razor used to be the most common method for skin preparation. This method has been going on for hundreds of years. Theory says that hair interference might cause wound infections and hence infections can be prevented if hair doesn't interfere with suturing of the wounds [12]. Several studies have shown that hair removal using a razor or a clipper can cause abrasions over the skin or sometimes a small nick which may lead to development of pseudofolliculitis, eventually leading to surgical site infections [15] 4. Pre operative razor shaving leading to cuts causes multiplication of microorganisms which enter the incisional site which leads to SSIs [7]. The best to do is practice not removing hair prior to surgeries unless it is interfering with the surgical procedure or the wound closure. In case hair is to be removed, the ideal method these days is to do it with the depilatory creams [1]14.

Depilatory creams can be used in areas which are usually difficult to shave. Depilation studies have no incidence of SSIs leading to no prolonged postoperative hospital stay and hence less cost for the patient. Several trials have been done till date comparing shaving and depilation cream and it has been found that there are statistically more surgical site infections with shaving method than with a depilation cream [1].

CONCLUSION

To summarise and conclude, the aim of the study is to identify the best method for pre operative skin preparation to reduce the incidence of

SSIs. After the completion of the study, it is suggested that whenever necessary to remove hair pre operatively it should be done preferably with a depilation cream one day prior to the day of surgery after a hypersensitivity test. Use of a razor for shaving should be avoided to reduce SSIs.

ETHICAL APPROVAL:

Ethical approval obtained for the study.

CONFLICT OF INTEREST:

The authors reported no conflict of interest for the study.

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