A Comparative Study on the Management of Blisters Secondary to Superficial Partial Thickness Burns

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ABSTRACT

Objectives: To determine whether or not there is a difference between unroofing a blister and aspirating the contents of the blister in terms of morbidity, pain and healing.

Methods: This study will be a randomized clinical trial (RCT). Duration of the study will be from February 1, 2006 to August 20, 2006. All burn patients examined during this period who will fulfill the inclusion criteria will be included in the study. There will be two groups of patients: (A) blister covers will be left intact, their fluid content aspirated and (B) blisters will have their skin covers removed.

Results: Better recovery rates were seen in patients whose blister covers were left intact. Pain score was better during the first week for patients whose blister covers were left intact.

Conclusion: Leaving the blister cover intact remains a better course of action in the management of superficial partial thickness burns.

Key word: burn blister

Introduction

The management of burn injuries has been one of the concerns of the Department of Surgery in Ospital ng Maynila Medical Center. The staff has always tried to provide the best quality care for burn patients seeking consult in our institution

As part of the continuing efforts of the department to improve its quality of care, the author decided to tackle the issue on the management of superficial partial thickness more commonly known as second degree burns.

Second degree burns present with blisters. They are moist, red and weeping. The wounds blanch with pressure. These are painful injuries.

It is these blisters and the pain associated with such injuries that have attracted the concern of the author. There has been some debate on what to do with these blisters. Should the skin cover of these blisters be removed or should they be left as some sort of biologic dressing? Which course of action would facilitate better wound healing? Does removing the skin cover of these blisters help in decreasing the pain felt by the patients during routine wound care?

Finding the answer to these questions and applying them in clinical practice would certainly help in improving our institution’s quality of care.

Objectives

This study will determine whether or not there is a difference between unroofing a blister and aspirating the contents of the blister in terms of morbidity, pain and healing.

Methodology

This study will be a randomized clinical trial (RCT). A table of random numbers will be used as a guide for randomization.

The duration of the study will be from February 1, 2006 to August 20, 2006. All burn patients examined during this period who will fulfill the inclusion criteria will be included in the study.

This study will dichotomize burn patients into: (a) Group A – burn blisters aspirated, not unroofed; (b) Group B – burn blisters unroofed

The following will be the inclusion criteria: (a) patients with superficial partial thickness burns and deep partial thickness burns, (b) burn patients not needing Burn Care Unit management.

The following will be the exclusion criteria:

- Patients with 3rd degree burn
- Burn patients who need Burn Care Unit management.
    - 2nd and 3rd degree burns greater than 10% TBSA in patients under 10 or over 50 years of age
    - 2nd and 3rd degree burns greater than 20% TBSA in other age group
    - 2nd and 3rd degree burns involving the face, hands, feet, genitalia, perineum and major joints.
    - Electrical burns including lightning injury
    - Chemical burns

- Inhalation injury
- Burn injury in patient with pre-existing medical disorders
- Any burn patients with concomitant trauma (e.g. fractures)
- Burn injury in children admitted to a hospital without qualified personnel or equipment for pediatric care
- Burn injury in patients requiring special social, emotional, and/or long term rehabilitative support.

Patients belonging to group A, the blister content secondary to burn formed would be aspirated. The skin covering the blister would not be removed. The wound would be covered with a layer of silver sulfadiazine, wet gauze and dry gauze.

On the other hand, for patients belonging to group B, the skin covering of the blister would be removed. The wound would then be covered with a layer of silver sulfadiazine, wet gauze and dry gauze

Patients will be compared based on the following parameters: (a) rate of wound healing, (b) morbidity, and (c) pain.

Wound dressing will be done a daily basis during the first week. Wound dressing will be done by a surgery resident. Dressing will be composed of a layer of silver sulfadiazine, wet gauze and dry gauze.

All patients will be advised weekly follow up at the Surgery out patient department. The presence of infection and the status of wound healing would be recorded during these visits. When applicable, recording of the pain score during the course of the wound dressing.

Results

Table 1 shows the age distribution of patients with second degree burn seen at the Department of Surgery Emergency Room from February 1, 2006 to August 20, 2006. A total of forty-five (45) patients fulfilled the inclusion criteria of the study. Twenty (20) of these were randomized into group A and twenty-five (25) were randomized into group B. Fifty-one percent (51%) of these belong to the one to five-year-old age group.

Table 2 shows the sex distribution of patients with second degree burn seen at the Department of Surgery Emergency Room during the duration of the study.

Table 3 shows the mean pain score during the follow up of the patients at the Department of Surgery Out-Patient-Department. It shows that patients belonging to group A, those whose blisters were not unroofed, have a lower pain score during the first week. At the second week the pain score between the two groups were the same. Pain score for group A were higher during the third week. At the fourth week, pain score for both groups were at the minimum.

Table 4 shows the infection rate for groups A and B. During the first week, the infection was higher for group B. At the second week however, infection rates increased for both groups. Group A infection rate was higher during the second week.

Table 5 shows the recovery rates for groups A and B. Patients belonging to group A showed a better recovery rate for the whole duration of the study.

The mean age of the forty five patients accrued for this study is 17-years-old, with a median age of 5-years-old. Most patients were 1-year-old.

Discussion

In the Department of Surgery of Ospital ng Maynila Medical Center, there has been continuing efforts to standardize the quality of care. This would mean that clinical practice guidelines be established for the different problems encountered by the physician.

Due to the yearly turn over of physicians in our department there needs to be a constant education on the proper management of patients. One of the problems encountered are those patients with burn injuries.

There has been differing opinions on what should be the proper management for the blisters that form on superficial partial thickness burns. Some advocate completely removing the skin covering of these blisters while others would say that the skin covers should remain intact.

In this study, we tried to compare the effects of completely removing the skin covering of the blister versus leaving the skin cover intact. Comparison was based on the infection rate, recovery rate and pain score associated with both course of action.

There were a total of forty five (45) patients included in this study. Twenty (20) of these belong to the group whose skin covers of their blisters were left intact. The remaining twenty-five (25) had their blister covers removed.

The study showed that there is an advantage of leaving the blister cover intact during the first week in terms of the pain score. However the advantage was no longer evident during the second week. On the third week, those belonging to group B reported a lower pain score compared to the other group. On the fourth week, pain score for both groups were similar.

Infection rates for both groups showed no distinct pattern. During the first week, those belonging to group A had a lower infection rate than those of group B. On the second week however, those on group A showed a higher infection rate. On the third and fourth week, both groups had zero infection rates.

Recovery rates for group A were better for the first up to the fourth week.

Conclusion

The study showed that the advantage of leaving the blister skin intact is evident in the pain score reported by the patients and the recovery rates for the whole duration of the study.

Thus, it is recommended that the skin covering of the blister be maintained initially to promote patient comfort in terms of lower pain score.

Leaving the blister cover intact remains a better course of action in the management of superficial partial thickness burns.

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Table 1. Age distribution of patients with second degree burn seen at the Surgery Emergency Room from February 1, 2006 to August 20, 2006.

Age	Group A	Group B	TOTAL
1-5	**11**	**12**	23
6-10	**1**	**4**	5
11-15			0
16-20		**1**	1
21-25	**2**		2
26-30	**1**		1
31-35			0
36-40	**2**	**2**	4
41-45	**1**	**3**	4
46-50	**1**	**1**	2
>50	**1**	**2**	3
TOTAL	*20*	*25*	45

Table 2: Age distribution of patients with second degree burn seen at the Surgery Emergency Room from February 1, 2006 to August 20, 2006.

Sex	Group A	Group B	TOTAL
Male	14	15	15
Female	6	10	10
TOTAL	***20***	***25***	**45**

Table 3: Mean Pain Score for Group A and Group B patients during weekly follow up.

	Group A	Group B
Week 1	7.3	7.7
Week 2	5.3	5.3
Week 3	3.8	2.7
Week 4	1.2	1.3

Table 4: Infection rates for Group A and Group B patients during their weekly follow up.

	Group A	Group B
Week 1	5%	8%
Week 2	15%	12%
Week 3	0%	0%
Week 4	0%	0%

Table 5: Recovery rates for Group A and Group B patients during their weekly follow up.

	Group A	Group B
Week 1	25%	20%
Week 2	80%	76%
Week 3	95%	88%
Week 4	100%	100%