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COMPARATIVE STUDY OF EFFECTIVENESS OF CYANOACRYLATE VERSUS PARAFFIN GAUZE DRESSING ON SPLIT THICKNESS SKIN GRAFT DONOR SITE

General Surgery

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ABSTRACT

Object: - The aim of this study was comparison of the results of use of cyanoacrylate versus paraffin gauze dressing on split thickness skin graft donor site.

Materials & Methods - This prospective study was conducted on 50 patients who were admitted in surgical wards in tertiary care hospital from December 2016 to July 2018 and underwent split skin grafting.

Results- In our study we observed that in cyanoarylate group patients, homeostasis and healing were faster and itching and pain as well as hospital stay was less as compared to paraffin gauze group patients.

Conclusion- Use of cyanoacrylate over donor site is very good in comparison with paraffin gauze dressing of donor site in respect to healing, homeostasis and time of hospital stay.

KEYWORDS

Cyanoacrylate, Paraffin Gauze, Split Thickness Skin Grafting And Donor Site

INTRODUCTION:

Skin is a very good protective layer for human beings against pathogens. It helps in the thermo regulatory system of the body by keeping temperature control by sweating and perspiration. It's continuity might be broken due to burn, trauma and infection. Break in continuity of skin gives rise to many complications. To maintain continuity of skin various methods have been used in modern medical science. Split thickness skin grafting is most common procedure for treatment of skin loss related conditions. In this procedure split skin graft is taken from other donor place e.g. Thigh, arm, leg, forearm and anterior abdominal wall. However, thigh region is most commonly used donor site. Though, recipient area heals fast due to grafted skin, donor site healing takes quite a lot time. [1,2]

Various types of dressings have been used for donor site. Still we are far away to find best dressing for donor site. To find out best dressing we carried out this comparative study to assess effectiveness of Paraffin gauze dressing versus Cyanoacrylate dressing.

Once the graft was taken from the donor site then 2-3 ml cynoacrylate was applied over the donor site and on that normal gauze piece and cotton pad placed and bandaged in Group 'A' patients. In the second Group 'B' patients paraffin gauze was applied and on that normal gauze piece and cotton pad was placed and bandaged.

METHOD & MATERIAL

The study was conducted on 50 patients admitted in the department of Surgery of our tertiary medical care centre from December 2016 to July 2018. The study was carried out on 50 patients, which was divided in two groups. In Group-A of 27 patients, Cyanoacrylate was used for donor site dressing [figure 1,2,3,4] and Group-B of 23 patients paraffin gauze was used for donor site dressing [figure 5,6,7].

Patients with infection free healthy wound of length 5- 15 cm due to any cause from burn, trauma, tumour excision and post burn contracture were under inclusion criteria. Patients who had infected wound, anaemia, HIV positive, uncontrolled diabetic mellitus type 2 and bleeding disorder were under exclusion criteria. All necessary investigations were done as per requirement of surgery and exclusion criteria. Period of healing and epithelisation was also noted. In both groups dressings were checked after 7th post operative day.

RESULTS:

All the surgeries were carried out under unit-1. In this study 28 males and 22 females were underwent for Spilt thickness skin grafting, in which cynoacrylate and paraffin gauze were used for dressings of donor site. Patients from 5 years to 70 years of age group were undergone Spilt thickness skin grafting as shown in Table-1. Spilt thickness skin grafting was mostly performed in either post burn contracture patients or in burn patients as shown in table-2. Time taken for homeostasis was less in group-A in comparison to group-B as shown in table-3. Time taken for haemostasis in group-A is 1-2 minute. Post operative pain, delayed epithelisation, bleeding and itching were commonly observed complications which were 7% in group-A and 27% in group-B as shown in table-4.in first post operative day pain is more persisting in Group-B which is present upto 3-4 post operative days. On 7th post operative day dressing is checked complete epithelisation is obsevered in Group-A and in Group-B delay epithelisation is observed. Period of hospital stay was more in group-B in comparison to group-A because of itching and delayed epithelisation as shown in Table-5.

We found good results of donor site dressing in both the groups but it was better in group-A in which cynoacrylate was used for dressing of donor site.

TABLE 1
Age Distribution

Age	NO.
1-10	5
11-20	6
21-30	4
31-40	15
41-50	8
51-60	8
61-70	4

TABLE 2
Type of Cause of wound

Cause	No
Operated cases of Post burn contracture	13
Burn	11
Trauma	9
Non healing ulcer	5
Diabetic foot	8
Operated cases of Congenital defect	4

TABLE 3
Time taken for homeostasis

Time for homeostasis	Group-A	Group-B
In minutes	2	7

TABLE 4
Post Operative Complications

Complication	Group-A	Group-B
Pain	1	2
Delay epithelisation	1	1
Bleeding	0	2
Itching	0	1

TABLE 5
Time period of stay in hospital

Period of stay in hospital	Group-A	Group-B
In days	7-10	14-20

DISCUSSION:

Skin is vital organ which provides defense mechanism of the body form different type of diseases including bacterial and viral. It also protected the body form external traumatic injuries. The breach of the skin continuity may be caused by burn, trauma, infection and tumors. These causes may lead to loss of large area of skin, which can be covered by split thickness skin graft either by the auto graft, homograft and heterograft according to the size of the wounds. Except auto graft other grafts taken from other human being, cadaver, pig and palm fish used as biological dressing of the wound which enhance healing of the wound.

There are many materials used for donor site dressing such collagen, paraffin gauze, cynoacrylate, calcium alginate, hydrogel, hydrocolloid, and silicone gel. This study was conducted to compare the effects of two dressing materials paraffin gauze and cynoacrylate in term of post operative pain, delayed epithelization, bleeding and itching.[3,4]

The post operative pain was less in cynoacrylate dressing in comparison to paraffin gauze because cynoacrylate degrade into formaldehyde which causes local anesthetic effect on nerve ending. (Leonard *et al.,* 1966), Ousterhout et al., 1968 was also studied effect of cynoacrylate on animals.[5,6,7]

Bleeding was immediately stopped after use of cynoacrylate with in 1-2 minute because it causes polymerization of the cynoacrylate after contact to the dermis. Leonard *et al.* 1968 ; Houston *et al.,* 1969[8,9,10]. The rate of epithelization was faster in cynoacrylate group than paraffin gauze because cynoacrylate causes greater inflammatory and exudative response. After 1949 cynoacrylate development it is use as a tissue adhesive for outer most skin layer. A study of use of cynoacrylate in dressing of split thickness skin graft donor site is showed good results. Use of cyanoacrylate has increased recently, because of its unique combination of chemical and physical properties.

CONCLUSION

In this study we observed that cynoacrylate is a very good dressing for the split thickness skin graft donor site as compare to paraffin gauze dressing. Its application is very easy and it results in quick haemostasis.and early epithelisation. The incidence of pain and itching at donor site is also very less as compare to paraffin gauze dressing.

Figure 1
After taking SSG from donor site

Figure 2
Application of cynoacrylete after taking graft

Figure 3
Post operative 7th day

Figure 4
Post operative 14th day

Figure 5
Application of paraffin gauze after taking graft

Figure 6
Post operative 7th day

Figure 7
Post operative 14th day

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