

ADVANTAGES OF COVERING SKIN DONOR AREAS WITH COLLAGEN MEMBRANE IN BURNT PATIENTS. OUR EXPERIENCE

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INTRODUCTION

During the last thirty years there has been great interest in knowing in depth the minutest details of the pathological processes which severe burns produce in the human organism; this interest has led to a better understanding of its physiopathology, and consequently, has improved the treatment of the burns. Nowadays it is not be wondered at that patients with burns covering more than 60 % of their body surface can be saved; at the centers specialized in the care of this type of pathology new methods and treatments are being developed, thus saving people who not many years ago would have been considered terminal cases. Clinical and experimental investigations are being carried on, and now patients with burns who at the beginning of the century were faced with an uncertain future, can now look forward to recuperation. (2)

In patients with burns, the main objective of surgery is to shorten the period of healing to prevent any germs susceptible of causing a generalized infection (in patient whose immunization system is weakened), and thus killing the patient. (1, 12) The most modern, more efficient treatment, and the one which shortens healing period is undoubtedly the early removal of scabs (8,9,11); the amount of skin we may count on to cover the burns or wounds depends on the size of the burned areas and the places these are located in. The speed at which the donor areas heal is of fundamental importance when it comes to obtaining grafts, and obtaining a faster cicatrization at the same time; the grafts are usually one third thick, this being the ideal measure because it grafts very well and leaves very little traces at the same time.

In our country, a donor area is covered with a sterile gauze, of oily or greased type, soaked in antiseptic or antibiotic fluids; the mean time of healing with this type of treatment is approximately 14 days, like a type AB-A burn.(3) The purpose of this work is to evaluate the use of collagen membrane in the treatment of donor areas, and to compare the length or duration of the healing period, eventual or possible complications and general development with those of the treatment usually applied.

MATERIALS AND METHODS

From December 1988 to March 1989 we treated 32 patients with burns ranging from 4 to 40 % of body surface (Table I). Distribution according to age and sex may be seen on Table II. After lifting the skin graft, the donor area is covered with a gauze soaked in hydrogen peroxide for 5 minutes; later the gauze is taken off and the surface is occluded with a collagen membrane on top of which a dressing is applied (bandaging). Every three days the outer dressing is changed and the skin of the periphery of the membrane is cleaned, to avoid accumulation of secretions; later on, we apply a bandage similar to the first one.

RESULTS

The period of hospitalization for these patients varied between 20 and 93 days; the complications shown on patients (series of treatment and control) are shown on (Table III). In one case there was a diagnosis of hematoma under the membrane on the third day after the operation which was solved by changing the collagen membrane (taking off the old one and applying a new one immediately after); the duration of the healing process in this case was 9 days. Another patient suffered a deepening of the donor area which had to be covered by self grafting. The average healing period in the control group was 14 days, whereas in the group treated with collagen membrane it was 7,5 days; overall mortality rate in the group was 3 %.

DISCUSSION

When treating a patient with severe burns one of the most important points we must bear in mind is how quickly donor areas can heal; an increase in the duration of the healing process may bring about the possibility of infections or deepening of the donor areas as well as an increase of exposed wound. In the case of out patients, a simplified treatment is considerably important in the case of donor areas. During the last years there is considerable interest in all those elements which shorten the healing period in donor areas; many materials have been used, from heterogeneous substances like poly-urethane alone (5) or mixed with other materials such as nylon (6), mixtures of hydrocolloids (7), cellulose (4) or heterogeneous grafts such as lyophilized pig skin

The possibility of using natural tissues (10) such as collagen has given a boost to the search for a substance which may shorten considerably the healing process. Thanks to the use of collagen membrane we have tried to show the stimulation of the production of its own collagen in an organism, because the membrane has exactly the same elements as natural collagen. The shortening of the healing process when using the collagen membrane is of statistical significance: (14 vs 7,5 days). It helps considerably in the cure of donor areas. In 87,5 % of the cases there were no problems when making other grafts only 7 days after the first ones.

In out patients cures should be much more simple since they must be carried out daily to avoid contamination; the areas covered by the collagen membrane evidence a remarkable immediate dryness. Post operative pain was minimal in all cases, and thanks to the immediate adherence of the membrane to the donor areas, the possibility of exposure and infection is greatly reduced. The only case of deepening of a donor area took place when a new graft was taken off an area in the back of the patient, and it was due to a mistake in the technique of obtention of the skin graft; the adjacent donor areas healed in 7 days, without any problems.

In view of its low cost and its safe applications, we believe in the use of a collagen membrane as cover for donor areas (skin donor areas) as it shortens considerably the healing process. Further investigation and evaluation of collagen treated areas is still needed, as regards the appearance of raised scars and skin contraction due to scars.-

TABLE I: DISTRIBUTION OF PATIENTS ACCORDING TO SEX AND SERIOUSNESS OF BURNS

GROUPS	MALES	FEMALES	TOTAL
I	2	2	4
II	6	4	10
III	9	6	15
IV	1	2	3
TOTAL	18	14	32

TABLE II: DISTRIBUTION OF PATIENTS ACCORDING TO AGE AND SEX

AGE	MALES	FEMALES
0 – 10 years	7	6
10 – 20 years	2	2
20 – 30 years	3	2
30 – 40 years	2	1
40 – 50 years	3	2
50 or more	1	1
TOTAL	18	14

TABLE III: COMPLICATIONS IN DONOR AREAS

	Group Treated	Control Group
Infection	-	2
Deepening	1	2
Hematoma	1	-
TOTAL	2 (6,25%)	4 (12,5%)

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