

HYDROTHERAPY (BATH THERAPY) AS A TREATMENT OPTION IN BURNS

Lochaitis A., Chalikitis S., Tzortzis C.

Department of Plastic and Reconstructive Surgery and Burn Unit, General District Hospital K.A.T., Kifissia, Greece

SUMMARY. Hydrotherapy means both immersion in a tub and showers in running warm water, provided these procedures contribute to the healing process. In our Department we use bath therapy starting on day 3-5 post-burn, when patients have overcome initial shock and their general condition has stabilized. In most cases nurses and physicians are present. The tub water is usually not salinized but sterilized, while ordinary (tap) water is used for showers. This study covering a total of 200 patients, over a period of 2 years (1989-1991), has the purpose of codifying the results of our long experience in this field, and stresses the advantages and shortcomings of this method compared to other studies in the literature.

Introduction

The benefits of bath therapy as an adjuvant to the treatment of burns are universally recognized. In our series of 200 moderate and major burns treated in our Department over a period of 2 years, the advantages and shortcomings of hydrotherapy have been evaluated on the basis of the following parameters:

- improvement of the burn surface (separation of the eschar, cleaning of the wound, drainage of pus);
- facilitation of physical therapy and mobilization;
- well-being and comfort of the patient.

Material and methods

Hydrotherapy means the use of warm water, both during immersion in a tub, and in showers with running water, provided these procedures contribute to the healing process of burn injury.

Our immersion tub is made of stainless steel (dimensions: 1.80.8x1.0 m) and contains 80 litres of water. It has valves for sterilized and ordinary water, drain valves, tangential heat pumps and thermostats, a hoist consisting of two rotating electro-mechanical arms, with a control desk, a stretcher and transfer trolley, and special devices for heating the room, water sterilization and ultra-violet radiation. The room is cleaned and sterilized after every bath, and culture specimens from the tub, trolley, hoist straps and other parts are regularly obtained. This means that only one patient daily can be bathed; otherwise the risk of cross-infection would rise considerably.

Showers are carried out in an ordinary porcelain tub using ordinary water in another room which is routinely cleaned and sterilised.

The bath tub is filled with water, the patient is gently placed in the tub (with a transfer trolley) and, after initial evaluation, debridement is started, and blisters and wounds are cleaned and cared for. In a water temperature of about 35 V the patient feels comfortable and can relax. When eschar incision or other procedures are performed, bleeding could be considerable. Loose necrotic debris is gently removed and pus evacuated. When the general condition of the burned patient allows it or when the burns involve only the upper part of the body, we prefer shower therapy using the same liquids (water and Betadine scrub), but the procedure lasts less than bath therapy (10 min versus 20 min). The temperature of the water depends on the

patient's feeling of comfort (ranging from 24 to 34 'Q. Our series comprises 200 burned patients hospitalized in our Department over a 2-year period (1989-1991). Male to female ratio was 1.59:1 (males 62%, females 38%). The great majority belong to the 20-40 years age-group (48.5%), and the 41-60 years age-group (36.5%). Only 15% were 61-80 years old. Bath therapy was used in 110 patients (55%) and showers in 150 (75%). The rule in our Department is to employ initially bath therapy, in severe burns, and to shift to shower therapy as the healing process continues. 110 patients in our series had minor or moderate burns (0-35% TBSA) and 90 had severe burns (36-80%).

The majority of the patients (179, 89.5%) achieved healing (with or without the need for further reconstruction), while 21 (10.5%) died. Bath therapy was employed for a period of 10-20 days in the majority of cases (168, 84%) and the duration of the procedure was 10 to 30 min (Table 1). The procedures were carried out once daily or every second day.

Discussion

Hydrotherapy as a mode of treatment for burns has been advocated or criticized by several authors, and undoubtedly it is widely used. We can scarcely imagine a Burn Unit without a properly equipped hydrotherapy room.

We agree with Yang Chih (1982), Carvajal (1988) and Craig (1982) in considering the purposes of hydrotherapy to be:

- to enhance desloughing and to clean the wound surface;
- to drain pus and to help debride;
- to alter microbial flora;
- to enhance healthy tissue formation and healing;
- to facilitate physical therapy; and
- to comfort and psychologically uplift the patient.

Analgesia and/or mild sedation are or are not administered, according to procedure planning and the patient's temperament, since even gentle scrubbing of the surface can sometimes be quite painful. Participants in the procedure are: the patient, the physician, one or two nurses, a male nurse and, often, a physiotherapist.

Materials used include sterilized warm water and povidone-iodine scrub. As said, no saline water was used (Table 2). We feel that saline water might elicit unnecessary discomfort for no obvious benefit, with all respect for several authors, including Kemble (1987), who suggest that burns in over 25% TBSA should be bathed in salinized water in order to avoid sodium losses. Our patients suffered when we added salt to the water. Moreover, hyponatraemia due to the procedure was not noted. The duration of the procedure varied considerably from patient to patient. In contrast to the general belief that the bath should not last very long, we feel it can cause no harm, and we usually take our time. In most cases, the patients really enjoy it, and we have work to do in the meantime. Loose debris is gently removed and pus evacuated when it exists. When an intervention procedure is required (incisions, removal of eschar) we try to be conservative in order to avoid unnecessary blood-loss and pain. In the meantime and under the guidance of the physiotherapist, patients are encouraged to perform movements, and to actively participate in their bath, which is a source of satisfaction. Hair-washing, shaving of axillae and around orifices can be carried out at the same time.

Despite scepticism and criticism, the method is still recognized worldwide. In the USA, 92% of Burn Units use the technique, and 74% of them practise it daily (Thomson, 1990).

Undesired effects, such as pyrexia, chills and fatigue, have been universally observed, but are transient and of no clinical significance. Gordon (1979) describes hypothermia and hyponatraemia when the bathing procedure lasts over 20 minutes, and the importance of

bathing solutions, especially in children. Since our hospital does not admit paediatric patients, we can present no concrete data on this.

Concerning bacterial dissemination, many authors (Yang Chili, 1982; Kemble, 1987) have stressed the possibility of microbial migration from contaminated wounds to healthier parts of the body. Martyn (1990) pointed out that the use of tap water comprises a serious risk of infection. We feel that bathing in sterile water, under absolutely sterile conditions, can combat the spread of infection. Moreover, these observations show how imperative it is to shift from one mode of treatment to another, depending on the case and situations. By using the bath only once daily and with sterile water, only, we feel that the risk of contamination, or cross-infection, is minimized.

TBSA	Shower	Bath tub
0 - 35% (110)	0 - 10	0 - 10
	10 - 20	10 - 20
	20 - 30	20 - 30
36 - 80% (90)	0 - 10	0 - 10
	10 - 20	10 - 20
	20 - 30	20 - 30

Table 1 Relationship between TBSA, type of hydrotherapy used and duration of procedure

	Shower	Bath tub
Nurses (1-2)		
Patient alone	+	+
Physician (s)	+	-
Male nurses (1-2)	+/-	+
Physical therapist	+/-	+
Sterile water	+/-	+/-
Ordinary water	-	+
Betadine scrub	+	-
Bath	+	+

Table 2 Personnel and material in hydrotherapy

Conclusion

Intense hydrotherapy is carried out in our Burn Unit as soon as the patient's general condition permits it. We feel that the benefits of this practice by far outweigh the shortcomings, and no undesired effects local wound care, offering multiple advantages in the can be exclusively attributed to it. We are convinced overall handling and comfort of the patient.

RESUME L'hydrotherapie signifie soit l'immersion dans un tub soit les douches avec de l'eau courante, A condition que ces procedures contribuent A la guérison du patient. Dans notre centre nous employons la

balneotherapie depuis le jour 3-5 après la brûlure, quand le patient se remet du choc initial et ses conditions générales se stabilisent. Dans la plupart des cas les infirmiers et les médecins sont présents. Normalement l'eau utilisée n'est pas salinisée mais stérilisée. Pour les douches nous utilisons l'eau commune (du robinet). Cette étude, qui prend en considération 200 patients pendant une période de 2 ans (1989-1991), se propose de codifier les résultats de notre longue expérience dans ce domaine et souligne les avantages et les défauts de cette méthode, par rapport à d'autres études dans la littérature.

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