Aspects of burn wound care in children

This thesis is composed of several papers on the treatment of burns, especially burns in children. The papers are written from the point of view of the burns physician.

New techniques of wound therapy that were developed in laboratories of dressing manufacturers or the skin bank have to be tested in the clinic to establish their effects on wound healing. In this thesis, clinical research on several burn wound treatments, especially in children, are discussed. It concerns the use of a silicone dressing material (Mepitel®) that is used as a fixating dressing for split thickness skin grafts. This method avoids the use of stitches and staples that in children have to be removed under sedation or general anaesthesia. The study showed, that fixation of the grafts was adequate and that final removal of the dressing was painless. Several indications for the use of human allograft skin, in particular glycerolized allograft skin, are described. A newly developed hydrofiber dressing, Aquacel® material was investigated as a dressing material for partial thickness burns. In the first article on this subject, the new dressing showed similarities to the commonly used glycerolized allograft skin. Results were favourable and in a randomized controlled trial these to methods were compared. It showed that hydrofiber dressing is a safe treatment for partial thickness burns in children. As some of the publications were somewhat dated, a literature search was done on recent publications on the silicone dressing, the hydrofiber dressing and glycerolized allograft skin. The three searches showed that the data in the papers were not outdated; all three dressing materials are still being used and clinical and pre clinical research on these materials is still being conducted.

In an epidemiological study to children admitted in the three Dutch burn centres the size of the group of children that is treated in the burns centres is described. It appeared that after the year 2000 there is an upward trend in the number of admissions, despite the fact that the number of burn casualties in children in the Netherlands had decreased. A possible explanation is the fact that the national criteria for the referral of burn patients are better followed. It
is also possible that after the Volendam fire disaster, the referrers have come to recognize the quality of burn wound treatment in the burn centres. Finally a systematic review on the treatment of burns in children was carried out. Although the treatments that were described were very divers, the general outcome is that the treatment of partial thickness burns with membranous dressing materials is to be preferred.