Introduction

Specialist clinicians have long been involved in determining the most appropriate and current interventions to manage hypertrophic and keloid scars. Pressure therapy is used in burns to help inhibit the effects of widespread hypertrophic scarring and remains the most widely used first line treatment. More recently, advancements in both manufacturing and technology have enabled the use of silicone inserts in addition to pressure therapy.7-10

Development of compression therapy garments

Providing choices to empower the patient and aid compliance

Basic construction and fabric has not changed since the 1970s however advancements in fabric, dye types, thread choice and the addition of motifs and trimmings have modernized garments and enhanced patient compliance by embracing manufacturing technological advancements with individual styles and preference choices. Manufacturers, predominantly Jobskin have noted the need to offer the patient a wider range of design choices, colours, textures and styles to support compliance.11,12

Innovations in Silicone gel

A Silicone-bonded textile for customisation to pressure garments

There are numerous stand alone silicone products available for use but only Silon-TEX® offers the combination of silicone and pressure in one comprehensive treatment. Developed using Silon® technology via an Interpenetrating Polymer Network, this patented combination provides a durable internal reinforcing mechanism within a very thin and soft silicone membrane. Silon-TEX® can be sewn directly into Jobskin made to measure garments in specific areas.

Demographics

It is estimated that 10 million people worldwide each year acquire scarring following trauma and post-surgical procedures. Over half a million children are hospitalised with burn injuries, a quarter to a half of all burn injuries attending a burn centre for treatment. The majority of paediatric burns occur in the home environment and are scalds from hot water and other liquids and burns from household appliances, faulty appliances or cooking accidents.13

Method: Single Paediatric Case Study

Nine months of age, accidental hot water scald to the lower extremities, abdomen, arms and hands following an accidental hot water scald. Cleo was sitting in the kitchen sink and pulled open the tap, hot water ran from the kitchen counter into the sink. Cleo admitted to A&E in Holland on the 24/6/14 with 23% deep dermal burns to legs, and feet. Minor burns to arms, hands and abdomen. Deep wounds on the left leg required decision made to split skin graft from skin harvested from upper right leg. Cleo was seen in the UK for private scar management.

Post-op therapy intervention

Massage and soft tissue mobilisation

Applied to minimise soft tissue shortening, adhesions and maintain ROM. Post-operative swelling present in the foot and sole of the foot reducing full contact with the floor while swelling to walk and stand for short periods, daily therapy has reduced oedema and increased ROM.

Pressure garments:

Applied as soon as the wounds healed and pressure was able to be tolerated. A Jobskin Premium MTM gradient pressure garment was designed and provided. Due to Cleo’s growth rate, regular garment reviews and re-measures were indicated.

Outcome results

Paediatric burn rehabilitation is both long and challenging and requires a team approach with specialists involved in burn care, working closely with the family.1-4 Custom made pressure garments remain the most widely used first line treatment for widespread hypertrophic scarring and recent innovation in colour fabric and trims has had a positive effect on compliance to treatment. Silicone gel in the form of Silon-TEX® shows many advantages over other separate contact media products; woven into a garment it provides pressure therapy that is effective, customizable and conformable. This simple, one step design provides the optimal combination with custom made garments of combining pressure and silicone therapy for the patient. Based upon these initial experiences, further utilisation of Silon-TEX® shows promise as a useful alternative to other materials commonly used and supports overall scar management compliance.

Conclusions

Advancements in both the manufacturing and technology industries have provided clinicians with unique combinations of garment materials. A custom garment with a silicone bonded textile insert accommodates the main needs of the individual patient and facilitates optimum aesthetic and functional outcomes. These advancements have also provided more durable and long lasting treatment options to manage patients’ scars. Although there is a plethora of evidence to support pressure therapy and silicone gel therapy, further investigation is warranted to advance standardised treatment options to examine the impact of this combination therapy on patient compliance and scar management outcomes.

References

3. Li-Tsang CW, Zheng YP, Lau JC. A randomized clinical trial to study the effect of silicone gel dressing and pressure therapy on post traumatic hypertrophic scars. Burns 2006;32:10e5.
7. For further information on Jobskin® MTM Pressure Garments and Silon-TEX® please contact:
Debra Wright, Jobskin Ltd, d.debrawright@jobskin.co.uk
Unit 13a Harrington Mill, Leopold Street, Long Eaton, Nottingham NG10 4QG
T: +44 (0) 115 975 4300 | E: orders@jobskin.co.uk
www.jobskin.co.uk

Clinical reasoning for pressure therapy

With the addition of Silicone gel:

Due to Cleo’s age and the main area of injury with high potential for scar (knees and ankle joints), the use of silicone in addition to pressure therapy and splinting was initiated to promote the most effective use of treatment modalities. Rehabilitation research to date has shown the early application of silicone and pressure is related to improvements in scar outcomes in children.7,14

Pressure therapy:

Thermoplastic splinting:

To provide prolonged stretch to the ankle and foot to minimize the effects of scar tissue shortening on RDM. A second socket was introduced to support the metallic arch and provide prolonged stretch to the scar on the dorsum of the metatarsal joints where shortening was causing the 4th and 5th toes to hyperextend.

Psychological support:

Excellent support from close family and friends. Siblings have adjusted well to Cleo suffering, helped by mums occupation and positive attitude to therapy. Professional psychological support: Mum self-referred to private therapy which she finds very helpful in adjusting her daughter’s injury and moving forward.