A Multi disciplinary approach to the management of Chronic Dependent Oedema in a patient with Spina Bifida.

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Picture 1

Picture 2

Picture 3

Picture 4

Picture 5

Introduction

The objective of this poster is to highlight the challenges of managing a patient with dependency oedema resulting from limited mobility due to underlying pathology i.e. Spina Bifida.To achieve a positive outcome a collaborative approach was taken using the skills of the unique multidisciplinary tissue viability team, comprising tissue viability podiatrist, tissue viability dietician and tissue viability nurse.

Method

The majority of the literature regarding oedema appears to focus on the venous leg ulceration aspect, and little has been written on prevention of fluid accumulation as in positional related oedema.
For many people living with Spina Bifida mobility involves leg braces, crutches or wheelchair dependence and with this comes many associated positional complications, such as venous insufficiency, venous leg oedema and chronic oedema progressing to lymphoedema.

The case in question was referred from podiatry to the multi disciplinary tissue viability team presenting with bilateral pitting dependent lower limb oedema, ulcerated left proximal inter phalangeal joint, necrotic plaque on the apex of the hallux and areas of non blanching erythema to both heels.

Our Team Objectives were:

To reduce lower limb oedema
Prevent further pressure damage
Encourage weight management and meet nutritional requirements.
Promote healing of ulcerated areas, thus preventing possible amputation.
Improve quality of life.
Obtain patients cooperation and support.

Case Study

Phillip, a 46 year old gentleman with spina bifida, presented to the multidisciplinary tissue viability team following referral from the podiatry clinic, with an ulceration on his 2nd proximal interphalangeal joint (Picture 1).The aetiology was unknown due to the underlying peripheral neuropathy, and Phillip thought that this had been caused by a bump during the many daily transfers in and out of his wheelchair. The chronicity of the ulcer was immediately attributed in part to the associated bilateral lower limb dependency oedema.

Role of Podiatrist

Past medical history revealed numerous treatments with antibiotics for the non-healing toe ulcer and associated cellulitis, and the team had deep concerns initially regarding viability of the toe. The ulcer appeared static with a dry sloughy bed, the surrounding area was dusky in colour. Aetiology was attributed to pressure damage from inappropriate footwear (Picture 2) which was immediately removed and a Kerra Boot was worn for the remainder of treatment time.

X-ray and inflammatory markers were done to ascertain any evidence of osteomyelitis and a 2 week course of antibiotics was commenced.

Role of Dietician

Secondary conditions to spina bifida may include contractures of the joints, depression, obesity, and skin breakdown (Sandler 1997). Observation suggested he was already somewhat depressed, his weight had been increasing, and we already had the ulceration to deal with. Full consultation with the dietician provided assistance for Phillip to reduce weight.

Role of Nurse

Initial limb circumference measurements were recorded and skin changes including early pitting oedema were observed (Picture 3), which if left unchecked could lead to irreversible changes.

Treatment with compression therapy

It is well documented (Hofman, 1998) that the most effective measure in controlling oedema is to elevate the limb, accompanied by appropriate compression with inelastic materials (Williams 2003). Phillip's daily routine seated in the dependent position in his wheelchair from 7am through to 10pm most days with no lower body movement, weight bearing or indeed sensation led to ineffective calf and foot pumps which in turn led to ineffective venous return and lymphatic flow (Picture 4)

The team immediately felt hopeful that with appropriate compression therapy and lifestyle adjustments, a good result would be possible to reduce the oedema and improve venous return, despite Phillip's immobility.

Full holistic and vascular assessments were undertaken as recommended by national guidelines.
In Phillip's case the risk factors associated with his condition made the need for definitive arterial status imperative to prevent complications by inappropriate compression therapy (Moffatt 2005).

Strong biphasic signals and an ABPI of 1.0 (left) and 0.92 (right) were recorded despite the accumulation of oedema on the dorsum of both feet. Pulse oximetry was also used following application of the compression bandages as a measure of the arterial flow post compression.

Considerable time was spent explaining compression therapy, mode of action, its benefit to venous return and the hope of a good reduction of limb volume. It was also explained that given his complete lack of mobility and muscle wastage that there were no guarantees, but that the team would try 100%, and Phillip consented to do the same.

Wool padding was used for shaping to create the required gradient necessary for compression to be effective. Compression bandaging was undertaken using Actico cohesive short stretch bandages to reduce the oedema. Due to the Phillips neuropathy, the initial level of compression was applied with cautionas advised by Lymphoedema Framework (Moffatt 2005) and carers were instructed to conduct frequent circulatory checks.

A regime of alternate daily bandaging was initiated, along with regular debriding and appropriate dressing of the ulcerated toe.

Aftercare

After 2 weeks the oedema at the ankle and on the dorsum had already reduced, and by week 6 the ankle measurements had reduced by 5cm on right, and 4cm on left. On the dorsum of the foot reductions of 2.5cm on right and 1cm. on left were noted. The erythema on both heels reduced and the ulcer on the left 2nd toe had intact skin. This has allowed for a referral to the orthotist for orthopaedic footwear (picture.5)

Once the foot oedema began to reduce, management continued with the use of Actilymph below knee hosiery class 2 (Picture 5), as the stiffer fabric of this type of hosiery has been shown to be more effective in maintaining limbs that are prone to oedema formation (Williams 2006). Phillip found this less cumbersome and was much more motivated to actively work at limb elevation throughout the day for short periods. The carers were also able to assist with skin hydration and application of hosiery on a daily basis.

Phillip was very encouraged and positive not having really believed his toes would be saved, but also he became much more pro active in making more healthy choices regarding his diet, habits and lifestyle. We have no doubt that a therapeutic relationship developed between the team and Phillip, which improved his attitude to therapy and helped concordance.

Discussion

Short stretch bandages are recommended to improve lymphatic flow (Foldi 2005), and despite concerns that these systems are not effective in patients with limited / no mobility, studies have shown that these concerns are groundless (Franks 2004, Best Practice 2006). The patient in this case study is certainly proof that Actico bandages are effective where there is no calf or foot pump activity, leading to reduction of oedema, healing of his toe ulceration and effective venous return.

Conclusion

With the correct treatment by a dedicated specialist multidisciplinary tissue viability team, positive outcomes in terms of quality of life improvements and oedema reduction were achieved in this patient against all odds.

The objectives achieved to date have actively contributed to enhancing the patient's wellbeing and social interaction. In turn he feels less depressed and has a fresh approach to life, demonstrating the success of a truly effective multidisciplinary team effort.

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