Cycloidal Vibration Therapy (VIBRO-PULSE®) A Patient Case Study. Treatment of Venous Leg Ulceration and Cellulitis.

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Introduction

Cycloidal Vibration Therapy (Vibro-Pulse®) has been used to treat both Cellulitis and Venous leg ulceration in previous separate studies.

Cycloidal Vibration Therapy (Vibro-Pulse®) does not apply a compressive force but has been demonstrated to increase microcirculation / blood flow, lymphatic activity and fluid movement in dermal tissue (1). This has been shown to increase the healing rates of long term venous leg ulcers (2) and in a randomised controlled trial to reduce the treatment time of Cellulitis by up to 50% compared to standard therapy. Vibro-Pulse® increases microcirculation improving the potential delivery of the antibiotics to treat the infection and reduces the associated oedema at the same time (2).

An evaluation was undertaken applying Vibro-Pulse® to a patient with bilateral venous leg ulceration that had also developed bilateral Cellulitis.

Patient Details

The patient was a 91 year old female with a history of memory loss and hypertension. She had been admitted to residential care and presented to the nurse and tissue viability team with bilateral venous leg ulceration. Although the exact length of time that these had been present was unknown it was obvious that the patient had developed the ulcers a considerable time prior to admission. The patient was in the final stages of life and very immobile and very frustrated.

Wound assessment and Treatment.

There were significant amounts of exudate from the patient’s wounds as a result they required daily dressing changes. The leg ulcers were very painful recording 4 on a 0 to 5 pain scale and the patient was very immobile interfering with her bandaging and frequently stated that her legs were very painful. She was also taking a variety of medication including the amount of analgesia (paracetamol) she required. Swelling and bandage changes had reduced to every other day due to the patient’s immobility.

After 2 Weeks of Vibro-Pulse®

Cellulitis remained resolved in the right leg and had fully resolved in the left leg. Right leg venous ulcer remained healed. Left leg ulcer had reduced in size by 75% and measured 7 x 13 cm. Oedema: 10% reduction in the circumference of her left calf and no change in the right. The patient recorded a pain score of 1 commenting her pain had dramatically reduced. Swelling and bandage changes had reduced to every other day due to the patient’s improvement.

After 4 Weeks of Vibro-Pulse®

Cellulitis remained resolved in the right leg and had fully resolved in the left leg. Right leg venous ulcer remained healed. Left leg ulcer had reduced in size by 75% and measured 7 x 13 cm. No change in calf circumference measurements and the patient recorded a pain score of 0. Dressings and bandage changes during this period had reduced to every 3 days.

After 8 Weeks of Vibro-Pulse®

Cellulitis remained resolved. The right venous leg ulcer remained healed and the left venous leg ulcer had reduced by 95.3% with 2 cm remaining. The patient healed shortly afterwards and was placed in compression hosiery.

Discussion

Cellulitis can commonly occur due to wounds or leg ulceration, Cycloidal Vibration Therapy (Vibro-Pulse®) in separate studies has shown effective results for treating venous leg ulceration and Cellulitis. This case study is an example of using Vibro-Pulse to treat both conditions at the same time. We would also like to emphasise the psychological impact this treatment had on the patient, the pain reduction experienced resulted in the patient taking more of an active positive role in her own treatment.

Conclusion

Cycloidal Vibration Therapy in this case was a clinically and cost effective treatment for a patient with both active Cellulitis and venous leg ulceration

References

2) M. Thoolen, T. J. Ryan, Y. Yang, G. W. Cherry. Healing venous ulcers with cycloidal multidirectional vibration.
3) J. M. Wilson, Y. M. Arseculeratne, Y. Yang, G.W. Cherry Healing venous ulcers with cycloidal multidirectional vibration

Cost comparison of treatment at time of hospital admission

<table>
<thead>
<tr>
<th>Description</th>
<th>Before Vibro-Pulse®</th>
<th>After 2 Weeks</th>
<th>After 4 Weeks</th>
<th>After 8 Weeks</th>
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</thead>
<tbody>
<tr>
<td>Total Cost of Treatment in £</td>
<td>£5,123.00</td>
<td>£1,649.00</td>
<td>£1,649.00</td>
<td>£1,649.00</td>
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<tr>
<td>Nursing Time £30.25 per 30 minutes per leg ulcer.</td>
<td>£125.80</td>
<td>£217.16</td>
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<td>Dressing changes per week</td>
<td>28 visits</td>
<td>2 visits</td>
<td>2 visits</td>
<td>2 visits</td>
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<tr>
<td>Dressing and Bandage changes per week</td>
<td>28 visits</td>
<td>2 visits</td>
<td>2 visits</td>
<td>2 visits</td>
</tr>
<tr>
<td>Total Number of Dressing Changes</td>
<td>121 visits</td>
<td>4 visits</td>
<td>4 visits</td>
<td>4 visits</td>
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<td>Drug Tariff</td>
<td>£6164.40</td>
<td>£217.16</td>
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</tbody>
</table>

Summary

- 91 year old female patient
- Venous leg ulcer, duration 4 months plus, daily dressing changes due to oedema, bilateral cellulitis
- Cycloidal Vibration Therapy (Vibro-Pulse®): 2 x 8 minute treatments daily until healed
- Left leg ulcer healed, left leg healed on 89% reduction
- Right leg ulcer healed, ulcer reduced on 97.5% reduction
- After commencing Vibro-Pulse® the leg ulcers were 91% improved on daily dressing changes
- Cellulitis has significantly improved but some inflammation remains
- Patient self administrating the treatment assisted by staff from the residential home.