

A Clinical audit of the Lymphflow Advance, Intermittent Pneumatic Compression Pump in the treatment of venous and lymphatic disease.

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Introduction

There are a number of intermittent pneumatic compression (IPC) devices available for use in the management and adjunct treatment of lymphatic, venous and arterial disease. IPC has been used at Wolverhampton Lymphoedema Service (WLS) since 2005 on all patients who have limb oedema, undergoing decongestive treatment, instead of MLD. To date there has been 9000 interventions using IPC, however FG MLD ‘fill and flush’ technique is used where midline oedema is present.

IPC, is the application of external pressure, using single or multi chambers garments, which are inflated with air to actively compress the limb (Camerota & Aziz, 2009). The development of the LymphFlow Advance, enables perform focussed treatment on the lymphoedematous area using a variety of different cycles. It follows a retrograde cycle, proximal to distal and is underpinned by the latest theoretical thinking in MLD.

Aims

To evaluate the Lymphflow Advance and determine if the device is effective when used as part of decongestive lymphoedema treatment.

Methods

For the purpose of this presentation Limb volume data was collated to observe outcomes of treatment as part of DLT. Initially a search using the clinic database was performed to highlight all patients who had received IPC from April –August 2017. This highlighted 23 patients in total. On reading patient notes, 9 patients were identified as received treatment using the LymphFlow Advance instead of the Hydroven 12 as part of decongestive lymphoedema therapy, in combination with lymphoedema compression bandaging and skin care. The 14

patients not used in this audit had received the treatment as part of ongoing maintenance or palliative care and did not have regular limb volume measurements taken.

Results

As detailed in Table 1, there were 8 females and 1 male being treated, with an average age of 62 years, range 41-84 years. 6 patients had bilateral leg oedema, with the largest leg being classed as the affected side for limb volume purposes. 3 patients had arm oedema following treatment for breast cancer. Patients attended for treatment daily for 2 weeks and were fitted with compression garments on day 10. Reducing sessions of treatment with the LymphFlow Advanced continued for the following 6 weeks in combination with skin care and compression hosiery. Limb Volumes were taken using a perometer for legs and standard 4cm measurements with a pre tension tape measure for arms on days 1,5,10 and at a 6 week follow up appointment on completion of treatment.

Discussion

Previous feedback gained from 22 patients and therapist, utilised feedback forms containing 5 questions for both therapist and patients has been presented previously (Pugh, 2017). Results demonstrated that overall therapists felt that it was useful to have different cycles available for targeting treatment with 14 patients reporting that the LymphFlow Advance was much better than the previous IPC machine used. Furthermore, case studies in Lee et al (2016), demonstrated that the LymphFlow Advance was accepted as an alternative IPC device in treating patients. Wigg (2009) states that tissue softening and limb volume reductions are comparable to those achieved when using IPC instead of MLD. The use of intermittent pneumatic compression devices, which offer a retrograde or manual lymphatic drainage cycle as part of self-management at home demonstrated an increase lymphatic flow by aiding re-establishment of lymphatic pathways (Furnival-

Doran, 2012). Furthermore, Adams et al (2010) demonstrated a statistically significant improvement in lymphatic function and increased propulsion rates of lymph flow.

Although the LymphFlow Advance can be seen as effective at assisting in limb volume reduction as part of DLT, the sample size is too small to offer any statistically significant data. Furthermore, Patient 3 did not have any treatment with graduated compression until completion of treatment, Patient 4 did not wear compression hosiery as prescribed as she went on holiday and Patient 7 had an episode of cellulitis and had to postpone part of his treatment, which would have impacted final results.

Patient demographics

Table 1 patient demographics

Treatment refers to standard Decongestive therapy with multi-layer lymphoedema bandaging and Lymphflow advance, mode and pressure.

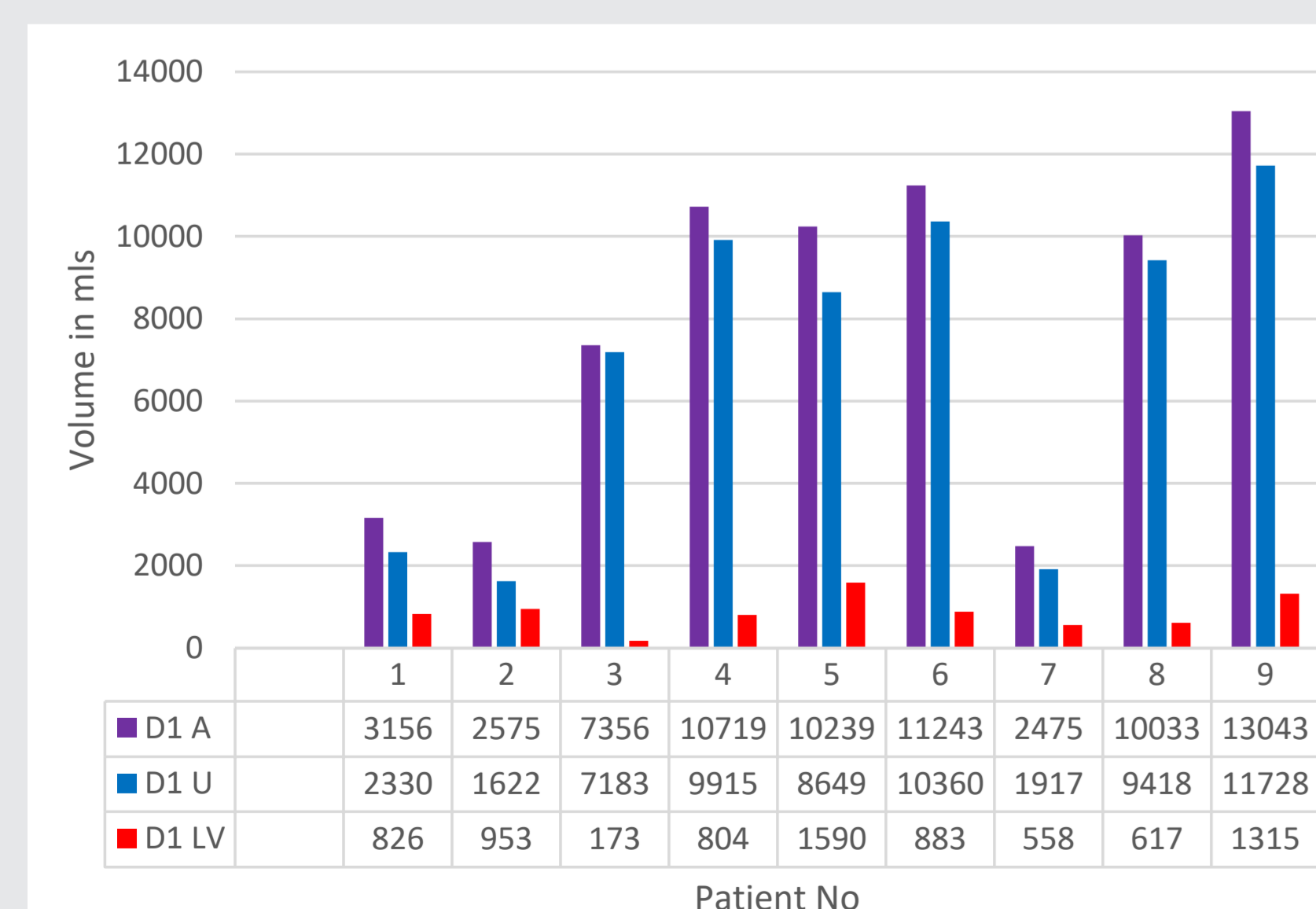
Patient	Age	Sex	Affected Limb	Diagnosis	Treatment
1	65	F	L arm	secondary to BC	DLT-LFA-3-30
2	59	F	L arm	secondary to BC svco	DLT-LFA-3-35
3	41	F	Bilateral legs	Primary	LFA-3-35*
4	53	F	Bilateral legs	Primary	DLT-LFA-3-30
5	79	F	Bilateral legs	LV/Obesity/mobilty	DLT-LFA-3-30
6	60	F	Bilateral legs	Primary	DLT-LFA-3-30
7	48	F	R arm	Secondary BC	DLT-LFA-3-30
8	84	M	Bilateral legs	LV/mobility	DLT-LFA-3-30
9	68	M	Bilateral legs	Mixed	DLT-LFA-3-30

Conclusion

Ongoing evaluation continues to demonstrate that the LymphFlow Advance is comparable or better than previous devices in maintaining and reducing oedema and that having cycles which focus on specific areas are beneficial. In future a larger study in the form of a randomised controlled trial should be completed to enable statistically significant data analysis.

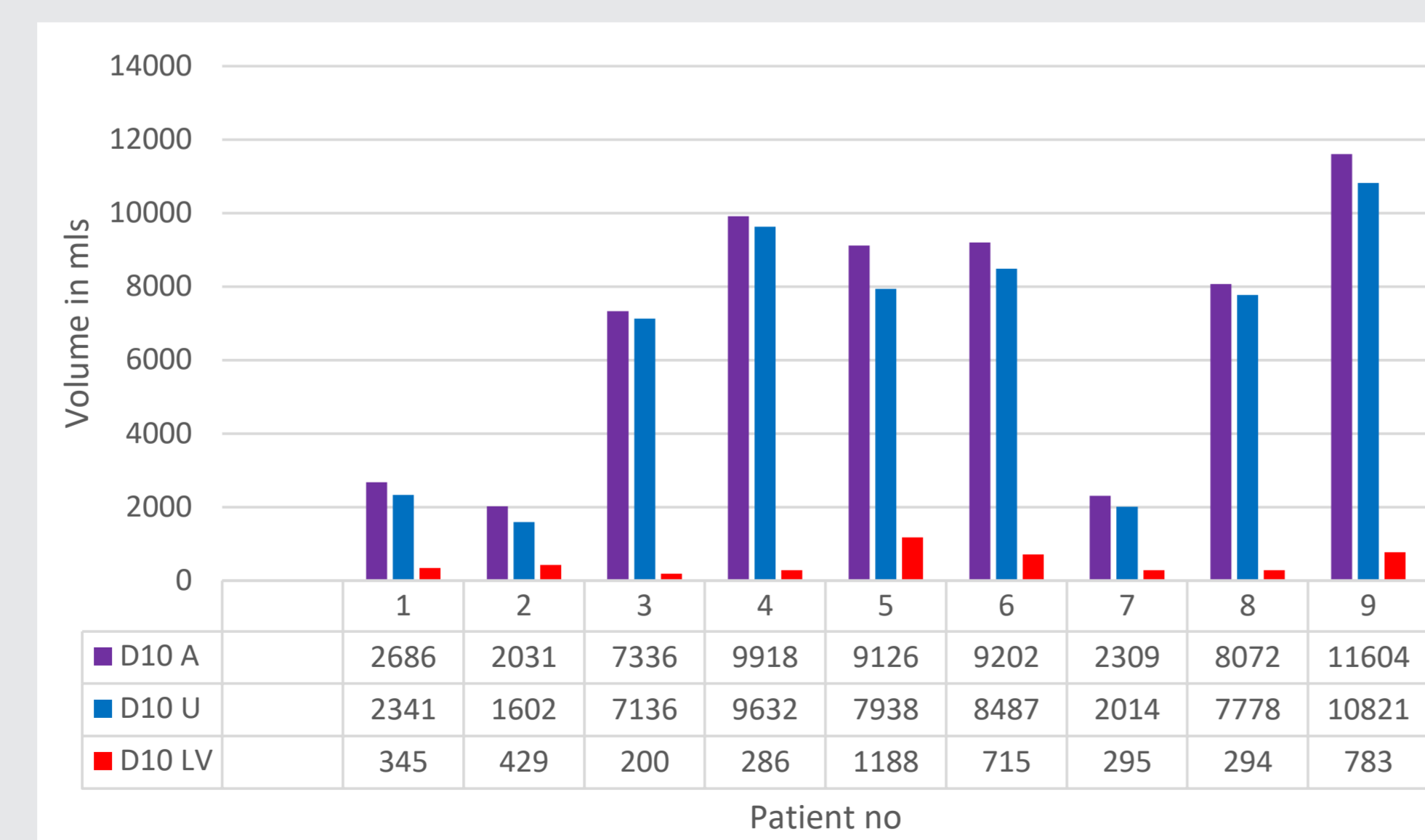
References available on request

Results



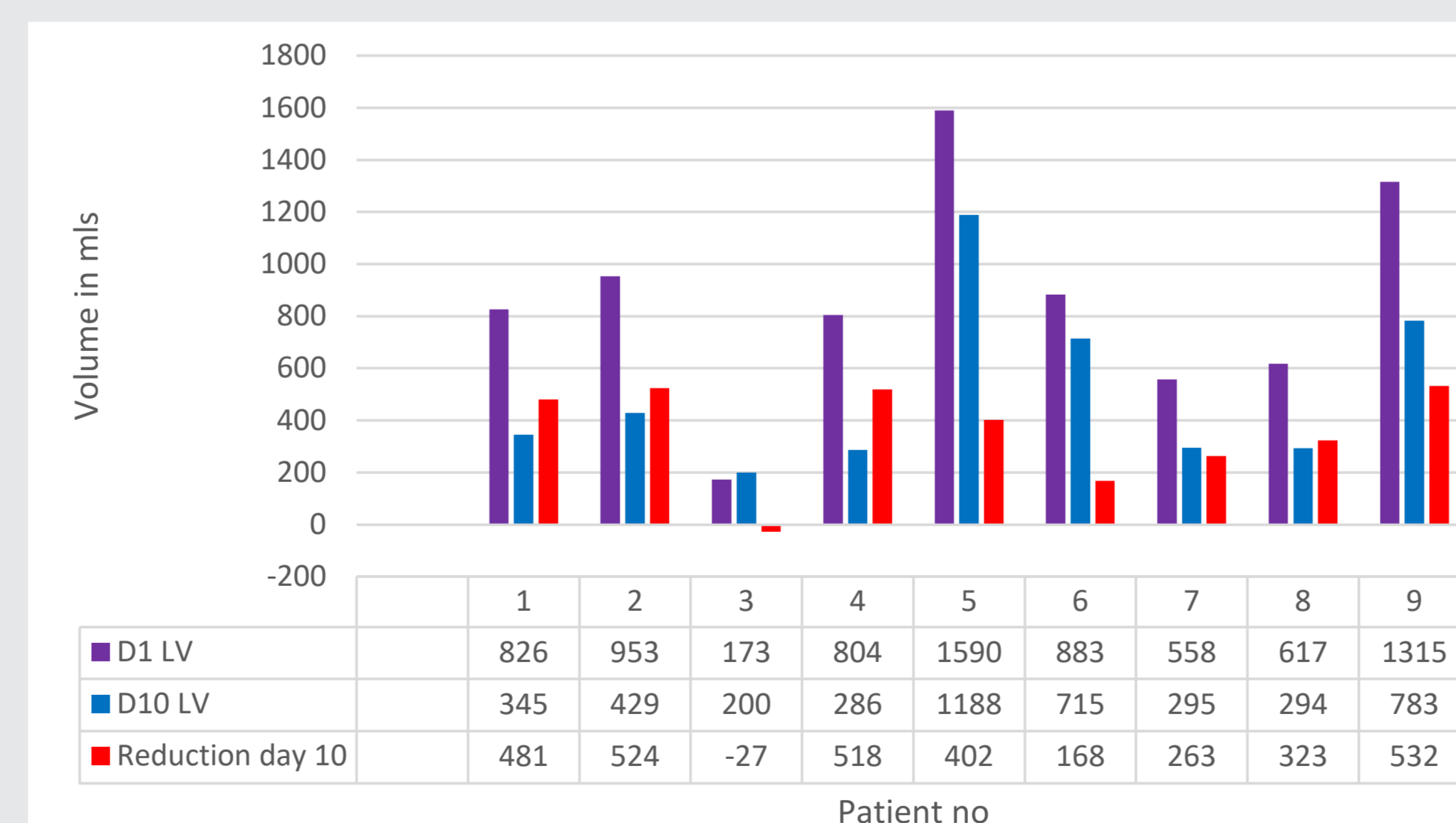
Limb Volumes Day 1, pre-treatment.

■ Affected limb ■ Unaffected limb ■ Excess Limb volume



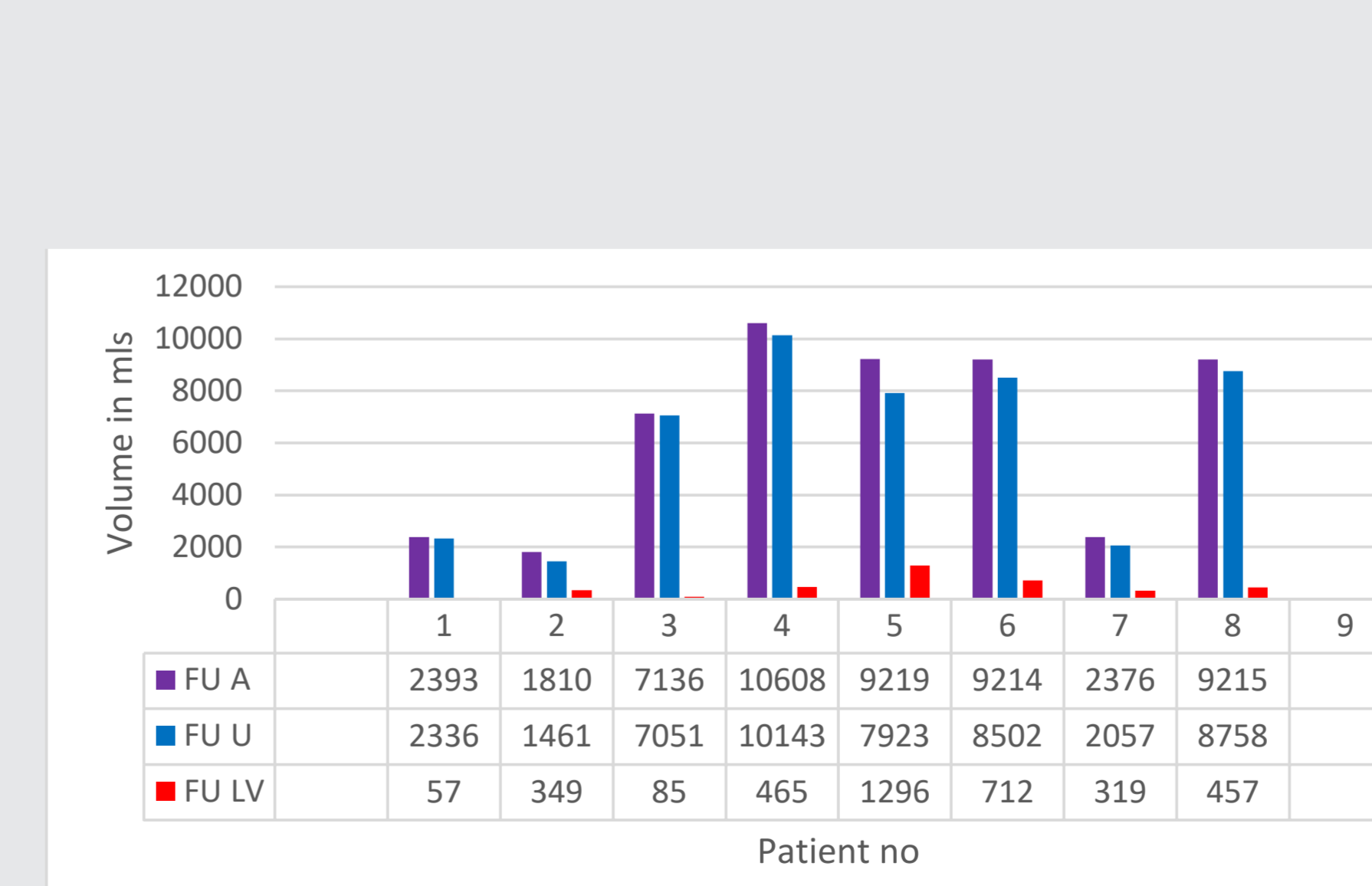
Limb Volume changes at Day 10

Whilst analysing the results of treatment all patients had a reduction in limb volume by day 10 of treatment, see bar chart 2.

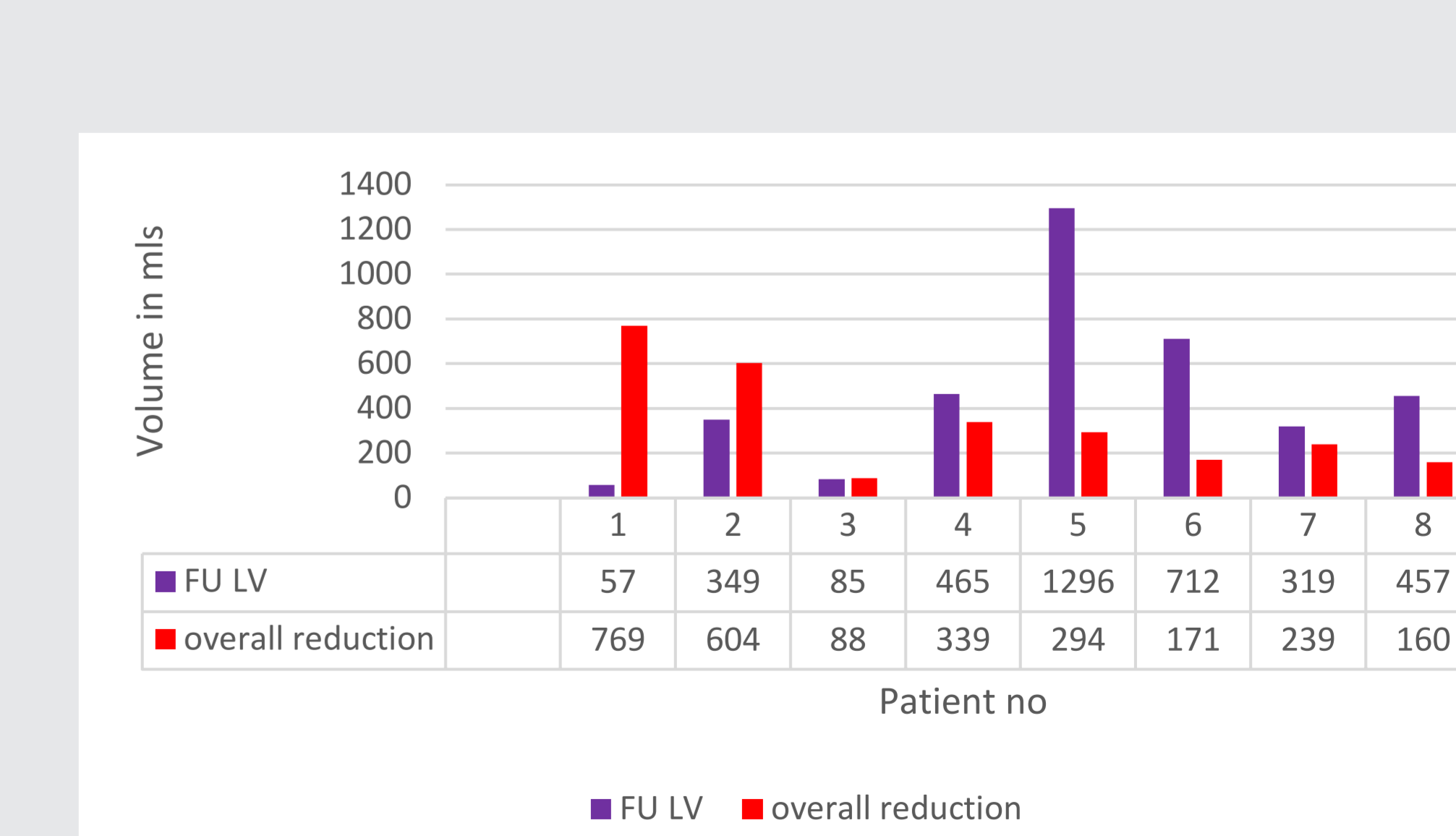


Overall limb volume changes by day 10

On day 10 patients were taken out of lymphoedema bandaging and flat knit compression garments implemented, they then attended reducing session for the following 6 weeks and continued with self-care until attending a follow up appointment after a further 6 weeks.



Limb Volume and overall reduction at 6 week review



Limb Volumes at 6 week follow up

Bar Chart 5 demonstrates that all patients who attended follow up review continued with or maintained the reduction in limb volume.