Radiofrequency-induced Thermo Therapy (RFiTT): Follow-up at 1 year after treatment of truncal veins

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Introduction:
Radiofrequency-induced thermotherapy (RFiTT) is a catheter based thermo-ablative endovenous treatment for refluxing truncal veins (Figure 1).

The Linear Endovenous Energy Density (LEED) is important in endoluminal thermoablution as it quantifies the energy output for each centimetre. Previous thermoablution studies have shown that a LEED >60 J/cm is needed for permanent closure1,2. However, when RFiTT was introduced a LEED of 20 J/cm was used which led to poor clinical results.3 This was because the energy was not high enough to cause transmural death. Destruction of the intima alone resulted in thrombus, recanalisation and re-opening of the vein. If a vein is initially found to be closed but then subsequently re-opens it is due to the early closure being thrombotic, not due to complete atrophy leading to permanent fibrotic occlusion. The aim of successful closure, therefore, is for transmural death leading to complete atrophy of the vein wall.4-6 Previous work suggested an optimal protocol for RFiTT.7 Fig 2 shows the in vitro results from the original settings compared to the results from the settings we found to be optimal in Fig 3.

Aim:
The aim of this study is to follow up all patients treated using this new protocol at 1 year post truncal vein treatment.

Method:
Sixty-three patients were treated with RFiTT using the new protocol. These patients were invited to a follow up scan 1 year post treatment. Attendees were scanned using duplex ultrasonography and compared to pre treatment scans to determine their outcome.

Results:
Sixty-three patients were invited to follow up. The response rate was 71% and 35 patients (55.5%) attended follow-up. These patients represented 68 treated veins, shown in Figure 4.

We found that 100% of veins were closed at follow-up 1 year post treatment. Furthermore, 100% of veins showed close to complete or complete atrophy. Examples of our findings are shown in Figures 5 & 6.

Conclusions:
Using an LEED >60J/cm we have achieved a 100% closure rate at 1 year post treatment of truncal veins with the RFiTT device. Also, 100% of veins showed close to complete or complete atrophy. This means that the closure is permanent and fibrotic. Therefore we recommend that this protocol become the gold standard when using the RFiTT device.

References: