ORIGINAL ARTICLE

A RETROSPECTIVE FOLLOW-UP STUDY TO SHOW THE EFFECTIVENESS OF BOOSTER DOSE OF FOAM SCLEROTHERAPY SESSION AT 3RD AND 6TH MONTHS IN PREVENTING THE RECURRENCE OF VARICOSE VEINS

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Background: Injection sclerotherapy administration is known to cause a decreased recurrence of varicose vein disease. This research aimed to investigate the recurrence of varicose vein disease after giving booster doses of injection sclerotherapy. The booster doses were given at 3rd and 6th months. **Methods:** One hundred and fifty patients participated and all patient's included ages 30–70 in the category of 'low risk' patients. The patients were both males and females. Patients participating in the study were counselled appropriately and written consent was taken from them. Moreover, the patients selected were volunteers and agreed to be part of the study. Patients who were above 70 years of age, those who were at a high-risk due to some co-morbidities (high-risk patients), patients not willing to be part of the study, those allergic to drugs being used including sclerosant and people with any known psychiatric illness or cardiac arrhythmias, deep venous thrombosis patients, patients having arteriovenous malformation/venous ulcers were all excluded. If the patient was pregnant, the gynaecology team was taken on board and the procedure was carried out. Every procedure was carried out under the direct supervision of the supervisor. Booster dose sessions of Foam Sclerotherapy were held at 3rd and 6th months of the study time. Their effectiveness was observed and documentation was carried out. **Results:** Since it was a procedure that could be done in the OPD, there was no need for specialized anaesthesia care. It is of significant notice that when a patient of varicose veins was given a booster intravenous sclerosant injection at 3rd and 6th month of treatment, chances of recurrence decreased to 50%.

Keywords: Recurrence of varicose veins; Booster dose; Foam sclerotherapy

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INTRODUCTION

Varicosities are obstructive or reflux pathologies of the wall/valve and involve the great and short saphenous venous system of the lower extremities ranging from moderate to severe form in intensity (also called varicosities). These varicosities are affected by a variety of factors including pregnancy, orthostatic stress etc. and develop over time.[1] Varicose veins have a chronic nature that is life-long in existence. It does, however, have an adverse impact and psychologically affects the life (QOL) of the patient. It should be kept in mind that a varicose vein is not a life-manipulating or life-changing disease in itself and this fact should always be kept in mind in taking a decision to treat and manage a patient with varicose veins. When the varicose vein is primary, it is significant to differentiate primary from secondary varicosities that develop from obliteration in the deep vein system of the body (epi-fascial collateral veins or the secondary varices).

Based on topography and morphology, varicose veins can be differentiated into the following basic types:

- Perforators incompetence
- Pelvic varicosities
- Spider navies type
- Great and short saphenous and accessory saphenous varicose veins
- Stray varicosities
- Reticular varices

It is of immense significance, however, that the veins should be defined in the nomenclature that has been formed in a transatlantic consensus.[2] There are different grades or classes in the reflux segment causing significant saphenous veins in competencies. This has been shown according to Hach.[3] Moreover, the above-mentioned classes don't entirely cover variations of varicose veins and

the incompetence class is then defined by the reflux segment's length to the refluxing point distally.

It should be of significant notice that other important forms exist[4], these include:

- Incomplete saphenous varicose vein. In this type, the perforator vein consists of a proximal reflux point or this may be present in any other areas.
- Isolated tributaries called stray varicosities or imperforates
- Pelvis varicosities including gluteal, pudendal etc
- Another type involves the saphenofemoral junction and presents a number of variants e.g., with or without incompetence of the terminal/preterminal valves.[7]

Sclerotherapy is a minimally invasive option to treat varicose veins patients. It is a foam ablation of varicose veins that is targeted. This procedure involves an intravenous application of a foam sclerosant (also known as foam sclerotherapy).[8,9] The veins that can be treated by this intravenous injection include subcutaneous, Trans fascial (perforator) and/or intradermal. Moreover, this therapy is also used to treat epi fascial, subfascial and supra fascial veins with venous anomalies and the mechanism in which sclerosant acts is by destroying the lumen of the vein and possibly valves of the vein wall. It is, however, neutralized by components of blood.[8,9] Once the sclerotherapy has been successful, the varicose veins are transformed into a string/cord of connective tissue (long term). This process is known as sclerosis and the vein is said to be sclerotized.[10–13]

Noteworthy the main purpose of foam sclerotherapy is the transformation of the varicose vein into a connective tissue cord. It does not work by thrombosing the vein because, in this way, re-channeling may occur. Since the possibility of re-channelling is rare, the outcome of sclerotherapy is comparable to the stripping of the vein or thermal ablation.

The main targets of Injection Sclerotherapy or Foam Therapy should be known.

They include:

- Ablation of varicose veins.
- Correcting venous dysfunction.
- Better aesthetic appearance.
- Minimizing chronic venous insufficiency.
- Improvement and/or elimination of venous symptoms,
- Improved quality of life.

It should be kept in mind that recurrence of varicose vein is a common anomaly and chances of it occurring after intravenous sclerotherapy do exist. Recurrence is associated at times with inadequate surgery. Moreover, the pattern of recurrence is highly variable and is often associated with many sites of incompetence of valves. The pattern of recurrence has also been linked with specific clinical factors in some instances.

MATERIAL AND METHODS

This was a retrospective cohort study that was conducted in Combined Military Hospital, Peshawar over a span of 06 months (Jan 22 to Jun 22). Approval of the study was acquired from the research and Ethical Committee.

One hundred and fifty patients were taken for this research study. All volunteers included were between the ages of 30–70 and in the category of 'low-risk' patients. The patients were both males and females. Patients participating in the study were counselled appropriately and written consent was taken from them. Moreover, the patients selected were volunteers and agreed to be part of the study.

Patients who were above 70 years of age, those who were at a high-risk due to some co-morbidities (high-risk patients), patients not willing to be part of the study, those allergic to drugs being used including sclerosant and people with any known psychiatric illness or cardiac arrhythmias were not included. Patients having deep venous thrombosis were excluded from the study. Moreover, arteriovenous malformation/venous ulcer patients were also excluded. If the patient was pregnant, the gynaecology team was taken on board and the procedure was carried out. Every procedure was carried out under the direct supervision of the supervisor.

Booster dose sessions of Foam Sclerotherapy were held at the 3rd and 6th months of the study time. Their effectiveness was clearly observed and documentation was carried out.

Each patient was prepared according to standard operation procedures (SOP) required for carrying out intravenous sclerotherapy. Sclerosant was prepared for intravenous administration and aseptic measures were taken. Intravenous sclerosant was administered and the patient was observed for some minutes.

RESULTS

One hundred and fifty patients with ages ranging between 30 to 70 years were included with a mean age of 70 years (Table-1). There were 100 (66.7%) males and 50 (33.3%) females in the study with a male-to-female ratio of 2:1 (Table 2). Since it was a procedure that could be done in the OPD, there was no need for specialized anaesthesia care. It is of significant notice that when a patient of varicose veins was given a

booster intravenous sclerosant injection at 3rd and 6th month of treatment, chances of recurrence decreased to 50%. (Table-3)

Table-1: Patients range

Age Range	Number of patients	Percentage
30–39	30	20
40–49	70	46.67
50–59	30	20
60–70	20	13.33

Table-2: Age differentiation in giving injection sclerosant

Sex	Number of patients	Percentage
Male	100	66.67
Female	50	33.33

Table-3: Sex differentiation in giving injection sclerosant

Booster	Recurrence
Not given	Same
Given at 3rd and 6th month	Decreased by 50 %

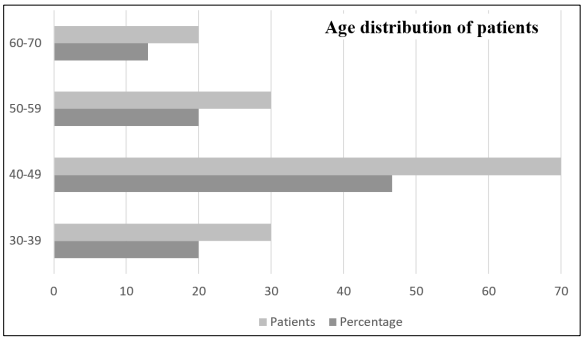

Figure-1: Effect of booster dose given

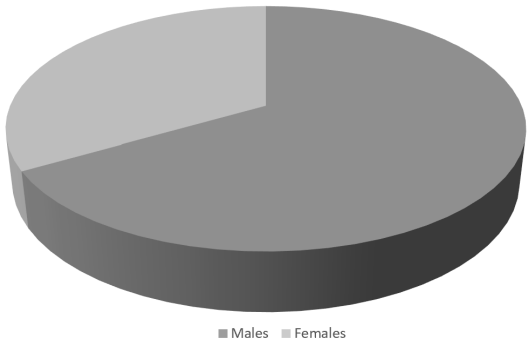

Figure-2: Sex distribution of patients

DISCUSSION

Foam sclerotherapy is a daycare procedure that can be carried out in a minor operating room and requires no need for any sort of anaesthesia. One aseptic measures are taken appropriately, there are minimal chances of a patient developing infection. The male-to-female ratio being 2:1 indicates that the disease (varicose veins) predominates more in males than in females, resulting mostly from long standing jobs. Similarly, in our study, most male members were occupants of a job that required them to be standing for long hours. In our study, we did not come across any complication associated with the procedure, e.g., allergic reactions, haemodynamic instability etc. On follow up of patients, no long term complication was observed. The recurrence of varicose veins by treatment through different modalities is very high.

In our study, patients were given booster doses of sclerosant at 3rd and 6th month of treatment. As a result of this, the rate of recurrence of varicose veins in the patients that were given booster doses decrease to 50% (in both males and females).

CONCLUSION

Foam sclerotherapy administered as a booster dose at 3rd and 6th month of treatment reduced varicose veins recurrence by 50%.

AUTHORS' CONTRIBUTION

NI, IK: Key performer of the procedures. FUK, UA: Literature search, the conceptualization of the study design, data collection, data analysis, data interpretation. GH: Write-up, proofreading.

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