Percutaneous sclerotherapy is an alternative strategy for the treatment of vascular malformations of the orbital and periorbital regions. The safety and efficacy of sclerotherapy in this setting have not been fully established. We present the results of a systematic review and meta-analysis examining the safety and efficacy of percutaneous sclerotherapy for the treatment of vascular malformations of the orbit. We searched PubMed, MEDLINE, and EMBASE from 2000 to 2018 for studies evaluating the safety and efficacy of percutaneous sclerotherapy for orbital and periorbital vascular malformations. Two independent reviewers selected studies and abstracted data. The primary outcome of this study is the efficacy of sclerotherapy which includes complete response, partial response, or no response to sclerotherapy. Data were analyzed using random-effects meta-analysis. Thirteen studies reporting on 154 patients were included. The rate of complete cure after percutaneous sclerotherapy was 3.4% (95% CI = 0.5%-6.2%), and the rate of vision loss was 2.7% (95% CI = 0.1%-5.3%). I2 values were above 50% for most outcomes indicating substantial heterogeneity. Our systematic review and meta-analysis of 13 studies and over 150 patients found that percutaneous sclerotherapy is a safe and effective treatment modality for the treatment of low-flow vascular malformations of the orbit <sup>10</sup>.

Likewise, sclerotherapy can also be used to reduce residual VM after surgery. Ethanol is the most commonly used agent in sclerotherapy due to its high efficacy, low cost, and high curative potential. Upon injection, ethanol displaces water molecules and penetrates the lipid bilayer of the cells, which compromises the stable membrane and kills the endothelial cells <sup>2) 3)</sup>.

Ethanol is an effective sclerosant in the treatment of orbital VMs. When ethanol is utilized, the patient is generally admitted for observation due to the risk of swelling that can put the eye at risk from excessive proptosis.

## see Bleomycin sclerotherapy.

1)

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