

Evaluation of performance characteristics of the medicinal leech (*Hirudo medicinalis*) for the treatment of venous congestion.

Conforti ML¹, Connor NP, Heisey DM, Hartig GK.

Author information

Department of Veterans Affairs, Department of Research, VA Hospital, Madison, WI, USA.

Abstract

Medicinal leeches (*Hirudo medicinalis*) are a standard treatment for venous congestion, a complication that can occur after reconstructive surgery. If the cause of venous congestion cannot be surgically corrected, then medicinal leeches are used to temporarily increase perfusion levels and maintain physiologic requirements within the congested tissue. Leeches increase perfusion within congested tissue by actively drawing off blood as a bloodmeal.

Furthermore, the leech bite continues to bleed and relieve congestion after detachment because of the anticoagulation effects of leech saliva left behind in the bite. In a porcine model, a 10 x 10 cm cutaneous flank flap was congested by clamping the venae comitantes. Four medicinal leeches were allowed to attach to the congested flap, and parameters of active feeding and passive bleeding after detachment were recorded.

The average bloodmeal volume for the medicinal leeches was 2.45 ml. Average passive bleeding for the first 2 and 4 hours after leech detachment totaled 2.21 and 2.50 ml, respectively, with 90 percent of passive bleeding occurring within 5 hours after detachment. Laser Doppler imaging indicated that the spatial arrangement of surface perfusion increases were localized to a 1.6-cm-diameter circle around the leech head (bite) and corresponded well with the visual return of normal skin tones to the same area. This study provides a realistic and quantitative estimate of the spatial and volumetric characteristics of leech feeding and passive bleeding using a clinically relevant model of acute, severe congestion.

<https://www.ncbi.nlm.nih.gov/pubmed/11786816>