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OPTIC NERVE SHEATH FENESTRATION AND ITS POTENTIAL PROPHYLACTIC APPLICATION FOR SPACEFLIGHT-ASSOCIATED NEURO-OCULAR SYNDROME

Abstract

Spaceflight-associated neuro-ocular syndrome (SANS) is a collection of signs and symptoms documented in 40-60

Additionally, SANS is considered a microgravity-analog to idiopathic intracranial hypertension (IIH). This condition often affects younger patients with increased body habitus with headaches, nausea, fatigue, and blurred vision. The increased intracranial pressure manifesting in these patients will result in retro-orbital pressure increases, causing globoidal deformation similar (but not identical) to the changes in SANS. Management for IIH consists of pharmacologic options, frequent large volume lumbar punctures, intraventricular drains, and optic nerve sheath fenestration (ONFS).

The purpose of this study is to discuss optic nerve sheath fenestration in the IIH population and its consideration as a potential prophylactic for astronauts who will undergo long-duration spaceflight. ONFS is considered a relatively safe procedure for patients who have IIH and may have utility in diverting SANS formation. Prophylactic surgeries and medications have been considered to reduce operational risks such as appendectomies and oral contraceptives; however, ONFS has not been described as a potential option for the management of SANS.