When Exercise is a Pain in the Head

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Recommended Citation
Granger, Rebecca D., "When Exercise is a Pain in the Head" (2014). Master of Science in Nursing (MSN) Student Scholarship. 36.
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Introduction

Headache is one of the five most common types of illness in the US, resulting in nearly 5 million visits to the ED (Lange, 2011). Exercise, including physical fitness, pathology, and as a potential indicator of a serious underlying condition, is critical. It is important to use appropriate interventions, but also to offer treatment and education about the symptoms of exercise-induced headache to the patient experiencing them. This will result in an easier and more effective treatment, better control and will subsequently save health-care dollars by reducing ED visits and unnecessary imaging.

Case Study

A 35 year old Caucasian woman presents to her primary care provider complaining of severe headache precipitated by strenuous exercise. Her exercise regime includes running, boxing, and rowing. During the course of her work out, the sudden headache lasts 98.4 degrees F, pulse 76, BP 118/80, radial pulse 98. She has a BM of 32, which puts her BMI at 20. Not surprisingly, she is reasonably healthy and takes no medication.

What is a possible diagnosis?

Discussion can include exercise modification and/or alternative activities, adequate hydration, avoidance of strenuous activity in hot weather or at high altitudes, and supportive therapies for existing PEH such as application of cold to the head and lying in a dark room for existing PEH such as application of cold to the head and lying in a dark room for 20 minutes (Allena et al., 2010, 2013), extending a number of viable theories are postulated. PEH has been attributed to: “cervical musculature and ligament stretching and venous distortion and arterial irritation associated with skeletal muscle activity” (Ellenbogen, 2007, p. 70), “roid rush in intradural abnormal pressure” (Cutter & Bowers, 2004, p. 142), magnesium deficiency (though this is more specific to migraine) (Lange, 2011), “sudden hemorrhagic changes” (Pascual et al., 2008, p. 28), metabolic and myogenic causes of impaired cerebrospinal autoregulation (Halter & Vargas, 2015), and “increased intracranial pressure” (Rothan, 1998, p. 8). Another theory is that “patients with baroreflex impairment may have hypersensitive central trigeminal nociceptive input–Proc. baroreceptor activation has an antinociceptive effect” (Khurana, 2008, p. 185).

Several studies have achieved more detailed, measurable, repeatable results, leading to very plausible hypotheses. Angiographic studies of PEH reveal increased arterial pressure at the base of the brain, producing the arterial pressure waveform similar to a thunderclap headache. “During the Valsalva maneuver may be responsible. During resistance exercise, the valsalva maneuver causes increased intracranial pressure which leads to an increase in systolic pressure which stresses cerebral arteries. This increased arterial pressure may dilate pain sensitive venous sinuses at the base of the brain, producing the external arterial headache (Haleyman, Eves, Warburton, & Flexin, 2005).”

Implications For Nursing Care

Since PEH is a potentially life-limiting disorder, the paramount action of the provider must be to quickly identify and treat the patient primary and not secondary. In addition, appropriate treatment and patient education are goals of care. Approximately in five exertional headaches is secondary (Cutter & Boes, 2008; Halter & Vargas, 2013). The provider must first rule out these potentially lethal secondary causes before fully exploring other benign primary causes. Obtaining a thorough history will be a valuable tool in correctly diagnosing the headache; one tool used in diagnosing PEH is the headache trigger, or if patient is unstable, by giving prophylactic indomethacin. It may be given on a week or twice weekly basis, depending on the acute and primary and not secondary. In addition, appropriate treatment and patient education are goals of care. Approximately in five exertional headaches is secondary (Cutter & Boes, 2008; Halter & Vargas, 2013). The provider must first rule out these potentially lethal secondary causes before fully exploring other benign primary causes. Obtaining a thorough history will be a valuable tool in correctly diagnosing the headache; one tool used in diagnosing PEH is the headache

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