

Study Compares Five Drugs Meant To Lower Intracranial Pressure

A small, innovative study from the UK recently compared the effectiveness of five different medications that are used to lower intracranial pressure (ICP) for people suffering from idiopathic intracranial hypertension (IIH), also known as pseudo-tumor cerebri. IIH is a condition which overlaps with Chiari in a number of ways. First, close to 10% of women with adult Chiari also have IIH. Second, many of the symptoms are the same as Chiari and it can be difficult to distinguish between the two. In IIH, the pressure of the fluid in the brain is chronically elevated, leading to headaches, vision problems, nausea, and cognitive issues. Sometimes it can be treated with medications which work in different ways to lower the pressure, but often people with IIH must get a shunt surgically implanted to keep the pressure in a safe range. Surprisingly, the medications that are often prescribed for IIH have not been tested extensively specifically for the condition. The purpose of this study was to compare the effectiveness and side effects of five different medications that are used to treat IIH: acetazolamide, amiloride, furosemide, spironolactone, and topiramate.

The study used what is called a cross-over design where each of 14 women with IIH took a medication for two weeks, then nothing for a week, then took a different medication for two weeks, etc. The order of medication was assigned randomly. The innovative part of the study was that a surgically implanted, wireless ICP monitor was used to measure the actual ICP after every 2-week medication course. This approach was selected in consultation with an IIH patient group. The study found that four of the five drugs – all but amiloride – lowered ICP by a moderate, but statistically significant amount. Acetazolamide resulted in the largest average decrease at 14.5%, with the other medications slightly less effective. However, with all of the drugs, a number of the patients were still in what would be considered an elevated pressure range and unfortunately there was not a significant reduction in patient reported headaches.

Many patients taking these types of drugs have reported cognitive side effects, so the researchers also assessed this using a battery of tests after each medication course. They found that acetazolamide, spironolactone, and topiramate all had a significant, negative impact on cognitive performance. While there were no serious, adverse reactions to the medication, patients reported the most side effects with acetazolamide.

While this study was small, by directly measuring the effect each drug had on ICP, they were able to show the limited effectiveness of these medications and the need for new treatment approaches.

Source: Mitchell JL, Lyons HS, Walker JK, et al. A randomized sequential cross-over trial evaluating five purportedly ICP-lowering drugs in idiopathic intracranial hypertension. Headache. Published online January 24, 2025.
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