Vascular effects of Infection in Pediatric Stroke (VIPS) Findings

VIPS Part 1 Results Summary

Thank you to all the patients and families for participating in the VIPS I Study. Because of your participation in VIPS I, we were able to learn more about childhood stroke. We are now enrolling childhood stroke patients in part 2 of VIPS. Our goal is to further understand childhood stroke and raise awareness. Thank you!

Results from the VIPS Part 1 Study:

The first VIPS study ended in 2012 with 355 pediatric stroke cases at 39 centers. The first VIPS study helped us better understand the relationship between infections and childhood stroke. We found out:

- Minor childhood infections can act as a trigger for a stroke, especially in children who have some other reason for stroke like a heart abnormality.
- The infections that occur right before a childhood stroke are mostly just the common cold.
- Special blood tests for a family of viruses called herpesviruses showed that many children with stroke had the herpes simplex virus type 1. The herpes simplex virus type 1 is the cause of cold sores. Most of the herpesvirus infections were actually "subclinical," meaning the child did not have cold sores or any other outward signs of infection.
- Routine childhood vaccinations seem to help protect children against stroke.

How could an infection increase risk for stroke?

A child's immune system generates an inflammatory response to fight off the infection. That inflammatory response causes blood to clot more easily. It can also cause inflammation of the lining of the heart and of blood vessels to the brain. This might make it easier for blood clots to form in the heart or the arteries to the brain. If a blood clot breaks off and then travels to the brain, it can block an artery and cause an ischemic stroke.

But….infections are so common in children, and stroke is so rare! How does that add up?

This question is why we extended the VIPS study into Part 2. In VIPS 2, we are collecting blood samples and throat swabs. We will perform special tests to detect the bugs infecting children with stroke, and study their inflammatory response. We also hope to learn the following:

- Is there something unusual about the actual bugs—the viruses and bacteria—that are triggering stroke in children?
- Is there something abnormal about the inflammatory response to infection that makes some children have a stroke, when most children do not have strokes?

Checkout the UCSF and IPSO website for the latest publications about childhood stroke:
https://pediatricstroke.ucsf.edu/publications

https://internationalpediatricstroke.org/ipso-literature-review/