Anti-cancer drug damages brain vessels

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New research may help explain why an anti-cancer drug causes potentially fatal brain inflammation in certain patients. Scientists at Harvard Medical School mimicked the drug's activity in mice and found that it damaged the cell lining that prevents fluid from leaking from the spinal cord into the brain. The results will be published online on Feb. 11 in the *Journal of Experimental Medicine*.

The cancer drug Avastin (bevacizumab) is used to treat advanced bowel cancer in combination with chemotherapy. This drug targets a protein called VEGF (vascular endothelial growth factor) that stimulates blood vessel growth. Avastin inhibits the growth of tumors by cutting off their blood supply, which deprives them of oxygen and other nutrients.

In a small percentage of patients, however, Avastin can cause neurological side effects ranging from headaches and blurry vision to potentially fatal seizures and brain swelling.

The new study reveals that VEGF normally protects the specialized cells that create a seal between the brain and spinal column and thus prevent fluid from leaking into the brain. When VEGF was blocked in mice, these cells died and the animals developed brain swelling. The authors suspect that Avastin’s side effects in humans may be caused by a similar phenomenon. Why these symptoms occur in only a few patients is not yet known.

Source: Journal of Experimental Medicine