Vitamin A and Protein Analysis in Cerebrospinal Fluid

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Idiopathic intracranial hypertension (IIH), also known as pseudo tumor cerebri, is a condition of elevated intracranial pressure (ICP). Vitamin A (retinol) intoxication is one risk factor for the condition. We are investigating a correlation between retinol and retinol binding protein (RBP) levels in cerebrospinal fluid (CSF).

CSF samples were obtained by lumbar puncture. Retinol levels in CSF were measured by high-pressure liquid chromatography, and RBP levels were estimated using the Human Retinol Binding Protein 'NL' Nanoridit Radial ImmunoDiffusion Kit.

Samples were divided into two groups based on retinol levels. (group 1: 10.7-19.5 nM; group 2: 0.233-8.3 nM) Both groups demonstrated significant direct correlation between retinol and RBP levels. Group 2, however, exhibited a more significant correlation (p=0.006) than did group 1 (p=0.09).

Group 2 RBP also correlated significantly with total protein levels in CSF (p=0.0004).

Conclusions are that Vitamin A levels and RBP levels in CSF may be quantified simultaneously using relatively simple methods. The levels show good correlation and also directly correlate with the amount of total protein. Further study to determine possible relationship of these quantities to IIH is proceeding.