

Letter to Editor**Spectrophotometry of CerebroSpinal Fluid may facilitate the diagnosis in Neurological patients****To the Editor**

Major proteins in human cerebrospinal fluid (CSF) have very low concentration in compared with human serum. An increase in total protein concentration of CSF is an important sign of central nervous system disturbances<sup>1</sup>. It is well documented that most of serum proteins exhibit maximum colloid absorption (MCA) at wave length of 280 nm<sup>2</sup>.

Because most of CSF and serum proteins are similar, it is expected that MCA of CSF would occurred at wave length of 280 nm, but Nematbakhsh et al were reported that MCA of CSF occurs at wave length of 270 nm<sup>3</sup>. They also mentioned that MCA of CSF shifts to wave length of 280 nm when total protein concentration of CSF is increased by adding albumin or globulin.

Accordingly, there is hypothesized that the location of MCA is correlated with total protein concentration of CSF and meningitis.

Patients whom referred to neurological ward of Al-Zahra hospital (Isfahan, Iran) were considered. Including criteria were required lumbar puncher and obtained clear CSF. Therefore, 38 patients were studied.

Total protein concentration in all CSF was determined. These samples were subjected to spectrophotometry to determine at which wave length MCA would occur. Blood samples also obtained for spectrophotometry and for determining total serum protein concentration.

Also, CSF samples were divided to meningitis and non-meningitis groups. Meningitis was diagnosed by CSF culture, pattern of blood cells in CSF, clinical signs and symptoms, and finally clinician decision. The data were reported as mean  $\pm$  SE, and were statistically analyzed by t-Student and Fisher exact tests.

For all patients, total serum protein concentrations were normal ( $5.37 \pm 0.21$  g/dl). MCA of serum were occurred at 275-280 nm wave length. In 10 patients, CSF analysis exhibit MCA at 270 nm wave length (group IA). Other CSFs (28 patients) have MCA at 275 -280 nm wave length (group IIA). Total protein concentration of CSF were  $10.56 \pm 0.75$ (g/dl) and  $38.12 \pm 8.1$  (g/dl), respectively ( $P < 0.05$ ). The patients also were divided to meningitis (n=25) and non- meningitis (n=13) groups (Table 1). Fisher exact test indicates significant correlation between meningitis and MCA at 275-280 nm wave length ( $p=0.05$ ).

Accordingly, the wave length - at which MCA in CSF is occurred- may be a key point for determination of CSF abnormalities.

It also seems that the increase in total protein concentration and of CSF is related to the shift of MCA from 270 to 280 nm. This is a brief report of a pilot study of course future studies are needed for details.

**Table 1.** MCA and TPC in meningitis and non- meningitis groups

Group	TPC of CSF (g/dl)	MCA at 270 nm (n)	MCA at 275 - 280 nm (n)
Meningitis** (N=25)	38.41 ± 8.88*	4	21
Non-meningitis (N=13)	16.35 ± 4.74	6	7

\*significantly greater than non-meningitis group (P<0.05)

\*\*significant correlation between meningitis and MCA at 275-280 nm wave length (p= 0.05)

TPC: total protein concentration

MCA: maximum colloid absorption

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