LETTER TO THE EDITOR

A STUDY OF ABNORMAL CSF TOTAL PROTEINS AND IMMUNOGLOBULINS LEVELS IN PATIENTS OF DEPRESSION

Sir,

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CSF total protein abnormalities in a group of patients was reported in a number of surveys of psychiatric patients where the diagnosis of patient was not given and for which no cause could be found (1, 8 and 12). Recently (2 and 5), elevation in total CSF protein is reported in some cases of depression.

In light of this, we have studied the CSF total protein and immunoglobulin pattern in 30 patients of depression as diagnosed according to the criteria of Fighner *et al.* (3). Patients did not take any drugs before and during experimentation. Twenty neurological patients were included to find out any similarity in the pattern of CSF proteins, illness of either unknown or multiple or doubtful etiology between them and depressives. Twenty surgical patients having no present and past family history of any psychiatric illness were included as controls. Clear CSF samples of different groups collected by the conventional method was used immediately for total CSF protein estimation by the modified method of Mulemans (9). Immunoglobulins were estimated by single radial immuno-diffusion technique which is reported to be sensitive technique for accurate measurements (7).

It was revealed that 36.6% depressives and 45% neurological patients showed raised total CSF protein of more than 46 *mg/dl*. These depressives were checked for possible organic lession in CNS and were found to have no such disorders, also no influence of age on CSF protein level was observed. IgG detected in CSF of all subjects were found to be significantly higher in neurological patients ($<.001$) and depressives ($<.05$) as compared to surgical controls. IgA was detected in CSF of only 7 depressives

TABLE I : CSF total protein and immunoglobulin levels in different categories.*

Total CSF protein (mg/dl)	*Depression (A) (N=30)*		*Neurological controls (B) (N=20)*		*Surgical control (C) (N=20)*	
	N	%	*N*	%	*N*	%
15–30	7	23.3	3	15.0	11	55.0
31–45	12	40.0	8	40.0	9	45.0
46–60	7	23.3	4	20.0	–	–
61–75	3	10.0	–	–	–	–
76–90	1	3.3	–	–	–	–
300–350	–	–	3	15.0	–	–
351–400	–	–	2	10.0	–	–
Means±S.D.		42.7±5.3		115.5±11.4		30.7±4.4

CSF Immunoglobulin	(A)		(B)		(C)	
(Ig/TP% *mg/dl*)**	N	Mean±S.D.	N	Mean±S.D.	N	Mean±S.D.
IgG/TP	30	8.0±2.6	20	10.2±2.9	20	6.6±1.9
IgA/TP	7	6.7±0.5	5	8.0±0.9	–	–
IgM/TP	–	–	5	0.9±0.02	–	–

Age (years)			
Range	17–50	17–50	17–50
Mean±S.D.	40.5±7.7	36.7±10.6	33.7±7.4

*Majority of them were male, Hindu and married with average body weight of about 50 *kg*.

**Expressed according to current neurological studies (14).

and 5 neurological patients where total CSF protein was more than 53 *mg/dl*. Other workers (2,5 and 10), have reported the similar findings where gamma-globulins as a whole were investigated electrophoretically.

The pattern of significant increase in CSF total proteins, IgG/TP and IgA/TP% in 1/3rd depressives and in 45% neurological patients may seem to be similar, and their elevation in these depressives may be due to one or more reasons mentioned in the literature for marked pathological patterns of CSF proteins in neurological disorders (2,4,5,6,10,11 and 14). Since, in these patients there is also significant increase in serum immunoglobulins (reported elsewhere, Tewari *et al.* (13), it appears that raised CSF proteins are a reflection cf raised serum protein - a pattern of ten found in inflammatory conditions where endothelial cell permeability is increased (11). Hence, it may point out towards disruption of blood-brain barrier in these depressives. However, further study is required to throw more light in this direction.

AJAI KUMAR,* S. C. TEWARI, N.LAL, J. K. TRIVEDI AND L. M. BAHUGUNA

Department of Psychiatry,
K.G 's Medical College, Lucknow
and
Department of Biochemistry,
S. N. Medical College, Agra - 282 002

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