

Cerebrospinal fluid levels of monoamine metabolites. A preliminary study of their relation to menstrual cycle phase, sex steroids, and pituitary hormones in healthy women and in women with premenstrual syndrome.

Eriksson E, Alling C, Andersch B, Andersson K, Berggren U.

Department of Pharmacology, University of Goteborg, Sweden.

The cerebrospinal fluid (CSF) levels of the serotonin metabolite 5-hydroxyindoleacetic acid (5-HIAA), the noradrenaline metabolite 3-methoxy-4-hydroxyphenylethylene glycol (MHPG), and the dopamine metabolite homovanillic acid (HVA) were measured in a group of drug-free non-depressed women with premenstrual syndrome (PMS) (late luteal phase dysphoric disorder) (n = 13) and in controls with no premenstrual complaints (n = 13). In six patients and eight controls, CSF samples from both the luteal and the follicular phase were obtained, whereas in the remainder of the subjects, samples from either the follicular phase (patients: 4, controls: 2) or the luteal phase (patients: 3, controls: 3) were taken. The following observations were made: (1) Neither in the follicular phase nor in the luteal phase did the mean concentrations of CSF monoamine metabolites in the PMS group differ from the corresponding values in the control group. (2) Neither in the PMS group nor in the control group did the mean concentrations of monoamine metabolites in CSF samples obtained in the luteal phase differ from the corresponding values obtained in the follicular phase. (3) The intraindividual, intersample variations of CSF HVA and 5-HIAA concentrations were significantly smaller in the PMS group than in the control group. (4) CSF HVA correlated strongly to CSF 5-HIAA in the luteal phase of both patients and controls whereas in the follicular phase, particularly in controls, this correlation was much weaker. (5) In the luteal phase, the CSF HVA/5-HIAA ratio correlated negatively to serum levels of estradiol, progesterone, and testosterone. (6) The CSF HVA/5-HIAA ratio was significantly lower in PMS patients than in controls. (7) A positive correlation between CSF MHPG and serum luteinizing hormone was observed in the follicular phase. (8) A positive correlation between CSF HVA and serum prolactin was observed in the luteal phase. Because the study was comprised of a small number of subjects, the reported findings until replicated should be interpreted with caution.

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