Whole blood and plasma viscosity determinations even at elevated shear rates using the Brookfield or another adequate rotational viscometer, appear definitely more reliable than any deformability test so far developed. In our paper we have only claimed that relative viscosity, namely the ratio between whole blood and plasma viscosity, appeared increased in patients with multiple sclerosis indicating probably that red blood cell deformability was decreased. Of course this is true only if one admits the existence of a relationship between relative viscosity and red cell deformability.³ The possibility that steroid therapy might have affected significantly the viscosity determinations seems remote. In a group of patients with long standing Cushing's syndrome we have failed to show any significant change of whole blood or plasma viscosity.³

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Childhood bacterial meningitis

Sir: A recent report described several cases of childhood bacterial meningitis with complications.¹ In this series, the incidence of cerebral infarction was high and factors possibly implicated in the aetiology of this complication were discussed. Further consideration of this serious sequel to meningitis may be of interest.

Elevated levels of fibrin(ogen) degradation products (FDP) in the cerebrospinal fluid (CSF) of patients suffering from viral or bacterial meningitis have been observed.² In cases with complications (including one case with hemiplegia), elevated levels of FDP persisted in the CSF for several weeks. The authors concluded the origin of the FDP to be either the serum, with leakage into the CSF via a blood-CSF barrier damaged by inflammation, or from arteries damaged directly, as a consequence of the associated arteritis. Others, however, have suggested nervous tissue damage to be the source.³

Whatever the origin of FDP in the CSF, these substances may play a crucial role in the pathogenesis of cerebral infarction. FDP are known to have several biological actions. They may increase platelet aggregation;⁴ they potentiate the action of many substances including peptides⁵ on smooth muscle and in addition to an independent contractile effect on human intracranial arteries, they enhance the effect of 5-hydroxytryptamine.⁶ FDP have also been shown to increase microvascular permeability—an effect abolished by β -receptor agonists,⁷ suggesting a possible therapeutic role for such drugs.

It seems possible that FDP play a central role in the pathogenesis of a variety of conditions in which cerebral arterial spasm may occur. If this is so, it

may be of interest to measure FDP concentrations in the CSF of patients with meningitis to observe whether there is a correlation between high or increasing levels of FDP and the onset of complications such as cerebral infarction.

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