TO TAP OR NOT TO TAP: IS THERE STILL A ROLE FOR LUMBAR PUNCTURE AND CEREBROSPINAL FLUID (CSF) ANALYSIS IN MULTIPLE SCLEROSIS (MS) DIAGNOSIS?

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With increasing importance of magnetic resonance imaging (MRI) the use of other ancillary tests for diagnosing multiple sclerosis (MS) became less significant. Where as in the Poser criteria (Poser et al., 1983) analysis of CSF was required to support the diagnosis of MS at least in the cases of two clinical attacks but clinical evidence for only one lesion or only one attack and clinical evidence for 2 lesions or only clinical evidence for one lesion plus paraclinical evidence (laboratory supported definitive MS, LSDMS). CSF analysis was also necessary in cases of two clinical attacks without any further clinical or paraclinical evidence (laboratory supported probable MS, LSPMS). With the latest version of the McDonald's criteria (Polman et al., 2011) analysis of CSF is not required in most situations. It may only be used as one out of three possibilities to support the diagnosis of primary progressive MS (PPMS). Yet lumbar puncture should still be considered in every patient in whom MS is suspected. There are several lines of evidence supporting this approach:

1) Although the diagnosis of MS is usually quite straight forward the list of MS mimics is also quite long (Miller et al., 2008) and CSF may give important clues either in favor of the diagnosis or against it. In this line it should not be forgotten that the diagnosis of MS according to the McDonald's criteria explicitly requires the exclusion of all possible differentials.

2) For patients presenting with the first episode of neurological symptoms suggestive of MS (clinically isolated syndrome, CIS) the prognosis about the likelihood of further attacks and about the aggressiveness of the disease is of great importance, yet very difficult to make. Although the fact whether the presenting MRI is normal or abnormal gives a good indication about the probability whether MS will develop or not and the number of lesions found in an abnormal presenting MRI is indicative for the clinical course during the upcoming years, detection of oligoclonal bands (OCB) or of intrathecal Ig synthesis within the CSF significantly adds to this prognosis. Normal findings in the CSF significantly reduce the likelihood to develop MS (Söderström, Ya-Ping, Hillert, & Link, 1998; Tintoré et al., 2008).

3) There is also a more formal argument for lumbar puncture in the diagnostic workup of a patient with suspected MS: Multiple sclerosis is an inflammatory disease of the central nervous system, the only way to prove an inflammatory process beyond the blood brain barrier is by searching for signs of inflammation within the CSF. MRI images will never be able to give this information. In addition even if CSF added no information to the diagnosis or prognosis of MS right now, it is quite likely that further development of biomarkers of MS within the CSF will gain more significance in particular for therapeutic decisions in MS.

4) Lastly lumbar puncture is often much feared by patients mainly because of post lumbar puncture headaches (PLPH). Yet the rate of this complication can be significantly reduced by the use of thinner atraumatic needles (Lavi, Rowe, & Avivi, 2010).

In conclusion lumbar puncture should still be a standard procedure in the work up of patients suspected to have MS. It is a safe procedure. The rate of complications, in particular PLPH is low, provided the correct technique is used. It helps to secure the diagnosis, may give important prognostic information and may, at least in the future, help to make therapeutic decisions.

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