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COMMENTS

Editorial comments

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The debate on the relevance and implications of hyperecogenic brain stem signals created considerable attention, and the different positions are well presented by the two manuscripts above. Berg and Walter both agree that these hyperecogenic signals exist in Parkinson's disease (PD). Since the needed equipment for transcranial sonography (TCS) is readily available, several investigators tried to replicate these results, unfortunately without consistent results. Berg and Walter, being aware of this fact, stress that the application of the method needs experience and is not automatic. We are reminded that the tissue changes reflected by TCS signals are unknown. While increased iron deposition and cellular infiltration are likely candidates, other options exist, including but not limited to, metals other than iron (e.g. calcium) and cells besides microglia, such as astrocytes.

One important limitation of the TCS results is that they are apparently non-progressive. It is unclear why, in a neurodegenerative disorder, the changes would not accumulate over time. Since the signals are said to appear several years prior to the onset of motor changes, only prospective studies will be able to verify not only what percentage of apparently normal people with (and without) hyperecogenicity will develop PD, but what is the time course. At present it seems that several years can elapse, and in some cases the process may perhaps take decades. This information will become critical once hyperecogenic signals are considered to be used as a biomarker to initiate therapy.

The calculated relative risk of 17.37 reported by Berg for the conversion to manifesting PD is indeed quite high (although the confidence interval is rather large as well). However, the results imply the existence of false negatives, i.e. people who had no evidence of hyperecogenicity, although they develop PD within 3 years.

Another yet unexplained feature is the symmetricity of the hyperintense signal in a disease in which the motor features are typically asymmetric at onset. Thus, while the midbrain hyperecogenicity shows promise as a biomarker for future development of neurodegenerative disease, it should not be taken as diagnostic of PD at this point. As shown by Walter, hyperecogenicity is seen in several disorders. Thus it is clear that presently TCS alone should not be employed for diagnosis either in asymptomatic people or in those with already established movement disorders. It is possible that together with other markers, such as olfactory deficit, a more specific signal may appear.

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