

A triaging blood test for Neurology? Serum neurofilament levels in a cohort of GP referrals

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Increased serum neurofilament is associated with CNS axonal loss from a range of causes. We assessed its potential as a minimally-invasive indicator of active CNS pathology in those with neurological symptoms.

GP referrals to the Neurology Rapid Access Clinic (RAC) at the John Radcliffe Hospital, Oxford were approached to take part. Informed consent was taken under a local Research Ethics Committee-approved protocol. Serum was taken prior to clinical assessment and tested for phosphorylated neurofilament heavy chain (pNFH) using a commercial ELISA (Euroimmun, Germany). Participants were followed up for final diagnosis.

The 62 participants had a range of symptoms, with final diagnoses including migraine, functional, neurodegenerative and inflammatory conditions. Receiver Operating Curve analysis used cut-off levels based on serum pNFH levels in healthy controls and patients with motor neurone disease measured as part of an independent local biomarker study. pNFH levels in the 'pathological' range were associated with serious underlying pathology in several RAC referrals. Ongoing analysis of the cohort will be presented.

Alongside clinical reasoning, serum pNFH may have significant value for the improved triage of those presenting to primary care with neurological symptoms. Further study in larger populations, including healthy individuals, is now warranted.