Intracranial Elastance Index

Trevisi et al. found that an Intracranial Elastance Index (IEI) ≥0.3 at ventricular infusion test had a high accuracy in predicting shunt response at 6 and 12 months in idiopathic normal pressure hydrocephalus (iNPH). The aim of this study was to verify the accuracy of IEI to predict response to shunt at both short- and long-term follow-up.

Retrospective evaluation of 64 patients undergoing ventriculoperitoneal shunting for iNPH between 2006 and 2015 based on a positive ventricular infusion test (IEI≥0.3). Patients were classified according to Krauss scale and mRS preoperatively, at 1-year and at last follow-up. An improvement of at least one point at Krauss score or at mRS was considered as a good outcome; unchanged or worsened patients were grouped as poor outcome.

Results: Mean follow-up was 6.6 years. Improvement at Krauss scale was seen in 62.5% and 64.3% of patients at 1-year and last follow-up, respectively. Patients in good functional status (mRS≤2) increased from 25 in the preoperative period to 57% at both 1-year and last follow-up. IEI was significantly associated with Krauss (p=0.041) and mRS (p=0.036) outcome at last follow-up. Patients with worse preoperative Krauss and mRS had higher chance to improve but higher overall scores after treatment. At ROC curves, IEI showed a good long-term prediction of change in mRS from first year to last follow-up.

Conclusions: IEI≥0.3 predicts outcomes at both short- and long-term, with more than 50% of patients being able to look after themselves after 6 years from treatment [1].

1)
Trevisi G, Signorelli F, de Waure C, Stifano V, Sturdà C, Rapisarda A, Pompucci A, Mangiola A, Anile C. Intraventricular infusion test accuracy in predicting short- and long-term outcome of iNPH patients: a 10-year update of a three-decade experience at a single institution. Neurosurg Rev. 2021 Feb 15. doi: 10.1007/s10143-021-01495-4. Epub ahead of print. PMID: 33590367.