Clinico-pathological analysis of stroke autopsies

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Objectives – To assess the diagnostic value of post-mortem neuropathological analysis.

Methods – We retrospectively analysed the clinical data of 158 patients in a regional centre for acute stroke care. For clinico-pathological analysis 98 cases (age 62±6.5y) were suitable.

Results – Clinically 64 patients had acute ischaemic stroke; in 13 haemorrhagic transformation was suspected. Autopsy revealed territorial ischaemia in 59, lacunar infarcts in 5, haemorrhagic transformation in 34 patients (16 thrombolysed and 18 non-thrombolysed) and in 11 brains secondary brainstem haemorrhage. Clinically brain haemorrhage was the main diagnosis in 22 patients; autopsy confirmed this in all cases. Neuropathology confirmed the clinical diagnosis in every case with non-cerebrovascular neurological disorder; autopsy revealed intraparenchymal bleeding in one case as a complication of meningoencephalitis. With Braak staging the Alzheimer’s type neurofibrillary tau pathology was none to mild (stage I-II) in 66 cases, moderate (stage III-IV) in 18 cases and severe (stage V-VI) in 7 cases. Mild synuclein pathology restricted to the amygdala and hippocampus was evident in two patients. No histology was possible from 8 brains. Overall, neuropathology confirmed the clinical diagnosis without major additional findings in 42%; confirmed the main clinical diagnosis and revealed significant undiagnosed pathologies in 51%; did not confirm the main clinical diagnosis and disclosed the main pathology in 7% of cases.

Conclusions – Our findings underline the importance of post-mortem neuropathological examination in the era of advanced imaging techniques. Haemorrhagic transformation of ischaemic stroke, including cases with thrombolysis, is often diagnosed only at autopsy. The educational and audit value of clinic-pathological analysis is also emphasized.