Troponin T elevation in acute intracranial hemorrhage

Paola PALAZZO,¹ Aude SCHNEIDER,² Pierre INGRAND,³ Matthias LAMY,¹ Louise WATRIN,¹ Aline BERTHOMET,¹ Jean-Philippe NEAU¹

¹ Department of Neurology, Poitiers University Hospital, France

² Department of Neurology, Saint-Louis Hospital, La Rochelle, France

³ Clinical Investigation Center INSERM, Poitiers University Hospital, France

INTRODUCTION

Troponin T elevation is associated with increased stroke severity and mortality, and with worsened clinical outcomes.¹⁻⁵ However, most studies have involved acute ischemic stroke patients.

We aimed to evaluate high-sensitivity troponin T elevation frequency in our cohort of acute intracerebral hemorrhage (ICH) patients, to identify clinical, radiological and biological factors associated with troponin increase, and to study its prognostic impact.

METHODS

Consecutive patients admitted to our tertiary care academic stroke center from January 2012 to December 2016 for radiologically-confirmed ICH within 24 hours of symptom onset were included. Clinical, radiological, EKG and biological variables were collected, including high-sensitivity troponin T levels.

Patients with ICH secondary to arteriovenous malformation, brain injury, brain tumor, hemorrhagic transformation of ischemic stroke or cerebral venous thrombosis were excluded. Similarly, patients with severe renal insufficiency or who had an acute coronary syndrome, an ischemic stroke or cerebral catheter angiography in the previous 14 days, which may raise troponin levels, were excluded from the analysis.

RESULTS

Of the 232 included patients (mean age 74.9±12 years, 58.6% men), 50% had high (>14ng/L) troponin T levels (Figure 1). Older age, male sex, higher admission glycaemia, previous ischemic stroke or TIA, mild-to-moderate renal insufficiency and EKG anomalies were independently associated with troponin elevation at multivariate analysis (Table 1). Six-month mortality rate was 32%. Mortality rates were 10%, 20% and 32% at 7 days, 30 days and 6 months, respectively. Acute phase troponin T increase was not associated with poor clinical outcome (mRS >2).

Figure 1. Flow chart of the study population

Table 1. General, biological, radiological and EKG data in acute ICH patients associated with high-sensitivity troponin T elevation at multivariate analysis

	Odds Ratio [IC 95%]	P
Male sex	3.412 [1.709-6.813]	0.0005
Older age	1.044 [1.012-1.077]	0.0071
Higher admission glycaemia	3.089 [1.235-7.729]	0.0159
Previous ischemic stroke or TIA	2.820 [1.329-5.983]	0.0069
Mild-to-moderate renal insufficiency	2.390 [1.143-4.996]	0.0206
T-wave inversion in ≥ 2 anterior leads	5.650 [1.950-16.372]	0.0014

CONCLUSIONS

Troponin T elevation occurred in half our acute ICH patients. Older age, male sex, higher admission glycaemia, previous ischemic stroke or TIA, mild-to-moderate renal insufficiency and EKG anomalies were independently associated with troponin elevation, which was not associated with poor clinical outcome.

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