

Introduction

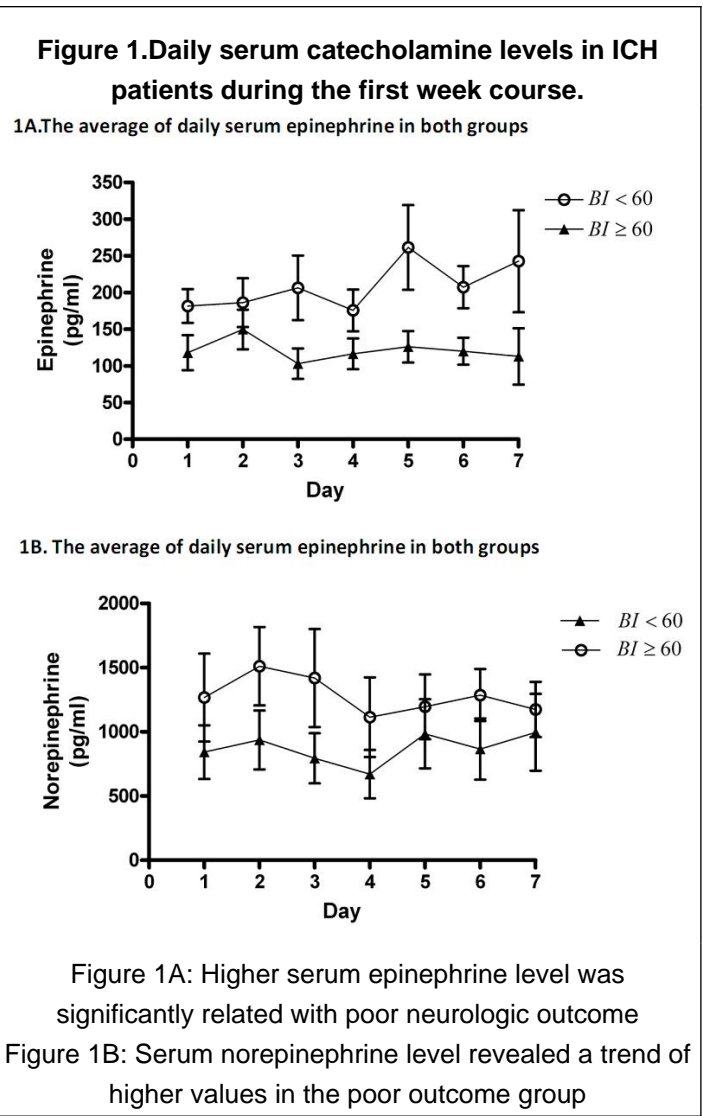
Hypertensive intracerebral hemorrhage (ICH) causes disability and mortality around the world, especially in Asian populations. Previous biochemical studies on hypertensive ICH revealed that catecholamines and inflammatory cytokines such as interleukine-6 (IL-6) may play a role in hemorrhagic stroke. However, the correlation between these potential biomarkers and neurologic outcome has seldom been discussed. Therefore, we aimed to study whether the serum levels of catecholamines and IL-6 are associated with neurologic outcome in hypertensive ICH patients.

Methods

Hypertensive ICH patients admitted to our institute between February 2011 and January 2012 were included in the prospective study. Blood samples were collected once daily during the first week of ICH onset to determine serum levels of epinephrine, norepinephrine, and IL-6. The physiological parameters were also collected, including intracranial pressure (ICP) in patients who received an operation. These patients then received follow-up for 90 days, and the functional outcome was measured using the Barthel index. The primary outcome was the correlation between the serum biomarkers and functional outcomes at follow-up.

Results

Seventeen hypertensive ICH patients were enrolled in the present study; 5 of these patients received an operation to remove hematoma, and ICP monitors were placed. The present study revealed a trend of higher serum catecholamines levels during the first week in the poor functional outcome group, especially serum epinephrine level on the day 3, 5, and 7. The serum IL-6 level did not show significant correlation with functional outcome. However, in the operative group, a negative relationship between the IL-6 and cerebral perfusion pressure was identified.



Conclusions

The prospective study indicated that a higher serum epinephrine level in the acute phase of ICH patients was associated with poorer neurologic outcome. In addition, we can also evaluate the efficacy and response of our treatment in the acute phase of hypertensive ICH. The relationship between catecholamines and secondary injury after stroke also provided potential therapeutic window for treating ICH patients.

Learning Objectives

- (1) Elevated serum levels of catecholamines are associated with a poor neurologic outcome in hypertensive ICH patients
- (2) The serial change of serum catecholamines may help with evaluating the therapeutic effect of our treatment modality.

References

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