DEM
Journal Club

Article Appraisal

Article: Anderson et al. Rapid Blood-Pressure Lowering in Patients with Acute Intracerebral Hemorrhage. NEJM. 2014; 368(25): 2355-2365.

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Background and Study Objective(s)	Outcomes (mortality and functional disability) in acute non-traumatic intracerebral hemorrhage (ICH) have been assumed to be determined by the volume and growth of the underlying hematoma and post hemorrhage blood pressure control. The goal of this study was to determine the safety and efficacy of early intensive lowering of blood pressure in patients with non-traumatic intracerebral hemorrhage.
Study Design	This was an international, prospective, open treatment, blinded endpoint study enrolling patients 18 years old with spontaneous ICH who were hypertensive (initial SBP 150 – 220 mmHg within 6 hours of onset). Exclusion criteria included structural cause of bleed and GCS <6. Patients randomized to the intensive-treatment group were managed to achieve target SBP <140 mmHg, while those in the control group were treated as per standard protocol at individual medical centres. Stroke severity was assessed by the NIHSS scale at baseline and periodically up to 90 days. In patients who received follow up imaging at 24 hours, change in hematoma size was also measured. The primary outcome was death or major disability. Secondary outcomes included an ordinal analysis of disability on the Rankin scale (added after onset of the study), quality of life (QOL), and safety outcomes.
Results	Patient characteristics were similar at baseline in the two study arms. Those in the intensive-treatment group had a statistically significant difference in SBP at 1 hour up to 7 days (150 vs 164 mmHg average SBP). There were no significant treatment differences including rate of intubation and ICU admission. Between the two groups there was no difference in primary outcome (52 vs 55% death/major disability), hematoma size, QOL score, or safety outcomes. Ordinal analysis of the Rankin score showed a significant shift favouring the intensive-treatment group
Validity of Results	Tbe authors proposed that their ordinal analysis offered support to their hypothesis that intensive lowering of SBP improves outcomes. However, the validity of ordinal analyses is controversial in the literature, and was similarly questioned at our Journal Club discussion, particularly as it was added well into the study.
Generalizability of Results	The results were considered to be widely generalizable, as this was an international trial using numerous, site-specific BP management strategies.
The Bottom Line	This study found no mortality difference with aggressive blood pressure lowering. Despite the authors' conclusions that intensive BP management result in better functional outcome, a critical appraisal of their statistical methods and results strongly suggests there is no significant clinical benefit to a lower SBP following an ICH.