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Correlation of 24-Hour Blood Pressure Monitoring with Short-Term Neurological Outcomes in Acute Stroke: A Clinical Study

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Abstract

Introduction : The association between blood pressure (BP) at admission and clinical outcomes in patients with acute stroke has been investigated; however, results from these studies are contradictory. Hence, we designed this study to monitor circadian variation of BP in acute stroke and study its correlation with neurological outcome.

Methodology : A total of 108 cases of acute stroke (both ischemic and hemorrhagic) admitted within 24 hours were included in the study. On admission, three casual supine BP measurements were taken at 5-minute intervals, and the mean value was recorded. Ambulatory BP monitoring (ABPM) was done on day 1, and all the BP variables were recorded. On the day of admission, the functional status of all the cases was assessed using the Modified Rankin Scale (MRS 0–6). On day 6, again, three casual BP measurements were taken, and MRS was done. The 24-hour BP profile and neurological outcome were correlated on day 1 and day 6. On follow-up at 1 month, all the patients were thoroughly examined, and MRS was done to reassess the functional status post stroke.

Results : Circadian variation of BP shows that the majority of our cases were nondippers, followed by reverse dippers and dippers. It was seen that a higher mean 24-hour systolic BP (SBP), daytime SBP, as well as nighttime SBP, were all significantly associated with a poorer MRS score (4–6) both at day 6 and 1 month. Similarly, a higher mean value of the casual SBP, as well as diastolic BP (DBP) readings obtained on day 1

of stroke, adversely affected the outcome in terms of MRS scores both at day 6 and 1 month. It was also seen that the higher mean values of both the casual SBP and DBP readings obtained on day 6 of stroke adversely affected the outcome in terms of MRS scores at 1 month

Conclusion: A higher mean 24-hour SBP, mean daytime SBP, and mean nighttime SBP were associated with poor neurological outcomes at day 6 and 1 month.

Keywords : ABPM, SBP, Stroke, MRS