

ABSTRACT

Background:- It is not so easy to make a quick screening between hypertensive emergency (H.E) and hypertensive urgency (H.U), as it often requires sophisticated, complex and time consuming clinical, instrumental and diagnostic tests.

Aim:- To address the role of B-type natriuretic peptide (BNP) in hypertension and how to use it to differentiate H.E from H.U to alleviate possible complications.

Methods:- A total of 30 patients with rapid severe elevation of blood pressure (B.P) admitted to the inpatient wards and critical care department, Cairo University, were included in a prospective, non-interventional study. On the basis of the clinical findings, patients were subdivided into two groups: **Group I:-** 15 patients with H.E with acute organ involvement and **group II:** 15 patients with H.U without acute organ damage. Another 10 patients with chronic hypertension were taken as **control group**. BNP was measured in the blood at the time of admission based on the principle of competitive enzyme immunoassay.

Results:- There was no significant correlation between the patients' age (58.5 ± 12) and BNP level (183.67 ± 216.3) ($r = -0.17$, $P = 0.3$). There was no significant difference in BNP level between males (223.35 ± 179.2) and females

(131.77 ± 255.2) ($p = 0.2$) and it was significantly higher in H.E patients (324.33 ± 233.16) than H.U patients (43 ± 13.5) and control (8.13 ± 5.8) groups with p-value of <0.001 . There was no significant difference in BNP level between H.E patients with cardiac (313.33 ± 179.6) and neurological involvement (313.67 ± 273.5) ($p = 0.8$), *also*, there was no significant difference in BNP level between patients presented with ischemic stroke (248.75 ± 171), hemorrhagic stroke (255 ± 132) and hypertensive encephalopathy (970) ($p = 0.3$). Moreover, there was no significant correlation between BNP and systolic B.P, diastolic B.P, mean arterial pressure and pulse pressure in both studied patients and control groups ($P > 0.05$ in all). Receiver operator characteristic (ROC) curve was calculated for the use of BNP level as a diagnostic marker. The area under curve (AUC) for BNP as a diagnostic marker was 0.96.

Conclusion:- During hypertensive crisis BNP blood level determination could have a role as a diagnostic tool for the screening of H.E and its evaluation is very useful in patients admitted with acute and rapid elevation of B.P to limit target organ damage.

Key words:- B-type natriuretic peptide; hypertensive emergency; hypertensive urgency; hypertensive crisis.