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**Usefulness of Brain Natriuretic Peptide and APACHE II Score in Predicting Length of stay in Patients with Heart Failure in Intensive Care Setting: a Retrospective Single Center Study**

**Background:** Brain Natriuretic Peptide (BNP) is a neurohormone secreted mainly by ventricles of heart as a response to volume expansion and pressure overload. BNP values in the acute care setting have been shown to be a powerful marker of prognosis and risk stratification in heart failure (HF) in many studies. APACHE II Score was designed to assess severity of disease in ICU patients and

**Methods:** In this study, patients admitted to the ICU of a community based hospital with HF over one year were identified. Their demographic, biochemical and hospital stay parameters were extracted and analyzed. Patients underwent echocardiography and classified into HFrEF and HFpEF based on ejection fraction.

**Results:** 233 patients were identified, out of which 127 had HFrEF. There was a positive correlation between admission BNP and length of ICU stay (Pearson’s correlation coeff. 0.25). However this correlation disappeared when adjusted for APACHE II score (p=0.98). APACHE II score was more strongly correlated to length of stay (Pearson’s coeff. 0.63) than BNP levels. In two groups of HF there were no significant differences between length of stay (5.31±3.3 vs 5.12±2.6 days, p=0.63). Mean BNP was significantly higher in patients with HFrEF (1168±1057 vs. 764±880, p =0.002).

**Conclusion:** This study showed positive correlation between length of ICU stay and BNP which disappeared on adjusting for APACHE II score. APACHE II Score appears to be a better predictor of LOS. There was no significant difference in length of stay in between two groups of HF.

