OP_A005

BRAIN NATRIURETIC PEPTIDE: A PREDICTOR OF ADVERSE OUTCOMES IN THYROID STORM?

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INTRODUCTION

Brain natriuretic peptide (BNP) is a cardiac biomarker used in the assessment of heart failure. Potentially, BNP levels can be used to stratify patients with thyroid storm (TS) who are at risk of complications such as heart failure and atrial fibrillation. We compared BNP levels in patients admitted with TS or impending TS (study group) with patients with newly diagnosed hyperthyroidism (control group) and to determine if BNP is a predictor of morbidity and mortality in patients with thyroid storm.

METHODOLOGY

This is a cross-sectional study conducted at University Malaya Medical Centre (UMMC) over one year (January 2023-December 2023). Fifty patients with impending TS/TS (TSG) and fifty patients with newly diagnosed hyperthyroidism (HG) were recruited and their serum BNP was measured. Patients' morbidity and mortality outcomes were recorded.

RESULT

FT4 and FT3 levels were higher in impending TS/TS (TSG) compared to newly diagnosed hyperthyroidism (HG): [FT4: 64.5 (27.4-129.1) pmol/L vs 30.5 (21.9-131.2) pmol/L, p <0.001; FT3 13.5 (7.9-45.4) pmol/L vs 13.5 (7.9 – 45.4) pmol/L, p = 0.038]. BNP levels were significantly higher in TSG [TSG vs HG:316 (2.0-8148.0) pg/ml vs 27.0 (2.0-310.0) pg/ml, p <0.001]. Those with impending TS/TS experienced higher rates of respiratory failure, atrial fibrillation, sinus tachycardia, and heart failure. In those with impending TS/TS, 80% had elevated BNP compared to 12% in HG. Those with elevated BNP also had significantly longer hospital stays [TSG vs HG: 5 (1-45) days vs 3 (2-7) days, p = 0.019]. Atrial fibrillation and sinus tachycardia were independently associated with elevated BNP detected by multivariable logistic regression. There was no mortality in either group.

CONCLUSION

This study demonstrated that BNP levels are elevated in impending/thyroid storms and can be potentially used to predict outcomes.