Circadian Index as A Predictor of High Premature Ventricular Contraction Burden: Padang Ectopic Beat (PEcBEAT) Registry

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Introduction: Circadian Index (CI) was known as an indicator of stable organization of heart circadian rhythm and greatly influenced by an autonomic nervous system. Apart from, a premature ventricular contraction (PVC) also associated with the changes of sympathetic nerve regulation. This study aimed to identify the power of CI in predicting PVC burden and set an optimal cut-off value.

Methods: The subjects of this study were 337 consecutive patients referred for 24-hour ECG monitoring for palpitations, dizziness, or syncope. Circadian index (CI) was calculated as the ratio of the average heart rate during day time (beat per minute) to average night time. High premature ventricular contraction (PVC) burden was defined as ≥10,000 PVC/24 hours.

Result: In this study, 222 subjects were women (66%), with the mean age was 46.6 ± 16.5 years. Using MedCalc software version 17.9, the correlation coefficient between circadian index and PVC burden was -0.26 (P<0.0001; 95% CI -0.36 to -0.16). On the other words, there was a negative correlation between both variables, a lower CI was associated with higher PVC burden. Area under Curve (AUC) value was 0.814, an excellent prediction power. We also found an optimal cut-off value of CI was ≤1.18 (93.3% sensitivity and 56.3% specificity) in predicting high PVC burden.

Conclusion: Circadian index has an powerful sensitivity in screening a high PVC burden.