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Melatonin as a Reactive Treatment for Post-operative Delirium in Patients in the Cardiac ICU: A Retrospective Cohort Study.

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Abstract

INTRODUCTION: ICU delirium is a significant problem in post-operative cardiothoracic patients, contributing to prolonged ICU and hospital stays and increased mortality. Current pharmacological treatments, such as benzodiazepines and antipsychotics, have notable adverse effects, leading to interest in safer alternatives. A systematic review has shown melatonin's effectiveness as a prophylactic agent for delirium in surgical and ICU patients. This study aims to assess the use of melatonin as a reactive therapeutic agent in post-operative delirium in cardiac ICU patients.

METHODS: This retrospective cohort study analysed data from 127 patients diagnosed with delirium, confirmed through a positive CAM-ICU score. Patients were divided into two groups: one that received melatonin (n=57) as part of their delirium management and another that did not (n=70). The primary outcome was delirium regression, measured by a negative CAM-ICU score during the ICU stay. Secondary outcomes included ICU length of stay, hospital length of stay, and duration of mechanical ventilation. Statistical analyses included the Mann-Whitney U test for continuous variables, the Chi-square test for categorical variables, and binomial regression analysis to determine predictors of delirium regression.

RESULTS: Delirium regression was slightly lower in the non-melatonin group (23/57, 32.9%) compared to the melatonin group (24/70, 42.1%), though this difference was not statistically significant (p=0.356). Binomial regression revealed an odds ratio of 0.845 (95% CI: 0.329-2.172, p=0.727) for melatonin's effect on delirium regression. Statistically significant predictors of delirium regression included ICU length of stay (1.126, 95% CI: 1.041-1.219, p=0.003) and mechanical ventilation (0.897, 95% CI: 0.833-0.965, p=0.004).

CONCLUSION: Melatonin showed a loose association with delirium regression but did not demonstrate significant effectiveness as a reactive treatment for post-operative delirium in cardiac ICU patients. Larger studies with more controlled environments are needed to better assess its potential as a treatment for ICU delirium.