Abstract

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Impact of Implementation of Critical Care Outreach Team on Readmission to ICU, Unplanned ICU transfer, Unexpected Cardiac Arrest, and Unexpected In-hospital Death

[1]Jun Ehara,[2]Yuko Kudo,[3]Takaki Naito,[1]Eiji Hiraoka,[4]Yasuhiro Norisue,[3]Shigeki Fujitani

[1]Internal medicine, Tokyobay urayasu ichikawa medical center, Japan
[2]Intensive care unit, Tokyobay urayasu ichikawa medical center, Japan
[3]Emergency and Critical Care Medicine, St. Marianna University School of Medicine Hospital, Japan
[4]Emergency and Critical Care Medicine, Tokyobay urayasu ichikawa medical center, Japan

Objectives:
Critical care outreach team (CCOT) is a part of rapid response systems, which provides critical care assessment for the patients in ward, and follow-up care to patients who discharged from ICU. There are limited data among efficacy of CCOT in Japan. The aim of this study is to investigate an effect of implementation of CCOT on clinical outcomes, comparing pre and post implementation of CCOT.

Methods:

This study was performed from July 1, 2016 to May 31, 2018 in a 350-bed referral hospital. In 18th July 2017, CCOT was introduced in the hospital. We reviewed CCOT and Medical emergency team (MET) records retrospectively. The number of MET activation, readmission to ICU, unplanned ICU transfer, unexpected cardiac arrest, and unexpected in-hospital death of pre and post implementation of CCOT was analyzed.

Results:

There were 1,168 patients reviewed by CCOT. Out of those, 903 (77%) were patients after ICU discharge. CCOT followed up 90.5% of patients who were discharged from ICU. Readmission to ICU of those patients was significantly decreased (9.8% vs 5.6%, $p = 0.002$). Respiratory rate measurement on general ward was increased significantly (40.7% vs 77.2%, $p < 0.01$). The number of MET activation was increased (10.0 vs 16.8 per 1,000 admission; $p < 0.01$). Unplanned ICU transfer, unexpected cardiac arrest, and unexpected in-hospital death per 1,000 admission were significantly reduced after CCOT implementation (17.6 vs 11.8; $p = 0.01$, 2.69 vs 1.12; $p = 0.02$, and 1.34 vs 0.22; $p < 0.01$), respectively. Total in-hospital death and ICU transfer were not significantly different between these periods.

Conclusions:

CCOT may have contributed to medical safety culture through improvement of respiratory rate measurement and increasing MET activation on ward. Readmission to ICU, unplanned ICU transfer, unexpected cardiac arrest, and unexpected in-hospital death significantly decreased after implementation of CCOT.