

INCREASING TIMELY NUTRITION IN MECHANICALLY VENTILATED TRAUMA SURGICAL PATIENTS

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Purpose

The purpose of the project is to increase timely nutrition in mechanically ventilated patients in the adult trauma ICU (TICU). Early enteral nutrition in intubated patients leads to positive patient outcomes as shown in research studies. The implementation of evidence-based recommendations through an algorithm, MD order, and nursing advocacy plan will improve the provision of nutritional support and associate with improved clinical outcomes.

Background and Evidence Review

In the critical care setting, patients are at risk of hypermetabolism and malnutrition. Malnutrition is associated with worse patient outcomes. According to recent studies, enteral nutrition, started within 24-48 hours of admission resulted in positive outcomes: decreased complications, decreased ventilator days, decreased infection, shorter ICU stays, and reduced mortality and morbidity. In addition, delaying initiation of nutritional support exposes the patients to an energy deficit that cannot be compensated later on. In the study setting, previous data showed patients were not consistently receiving timely nutrition. An external reviewer also questioned the inconsistency in beginning nutritional support. Moreover, the American College of Surgeons consultative site review last fall (2009) cited critical nutrition as an opportunity to improve trauma patient's care.

Methods

From April 1, 2009 to December 31, 2009, 243 trauma surgical patients were admitted. Pre and post data collection by chart audit measured time of implementation of nutrition. Based on recommendations from evidenced based literature review, patients excluded from this study were abdominal surgeries, medical abdominal conditions, patients scheduled for emergency OR, non-ventilated patients, extubated before 24h, or transferred out from ICU. Of the 243, 112 met the criteria for inclusion. Of these, 38 were selected as a sample. The project piloted a preprinted order sheet for physicians as a trigger and an algorithm to increase the advocacy of nurses and dieticians for early nutrition.

Results:

The pre-implementation chart review showed nutrition was initiated from 2 days to 10 days with the average of 4-5 days. On April 29, 2010, the algorithm, MD order set and nurse advocacy plan was initiated. Post implementation, three patients met the criteria for inclusion and were started on nutrition within 1.5 days or 35.6 hours.

Conclusions

The implementation of evidence-based recommendations, algorithm, and order set, with nurse advocacy improves the provision of nutritional support and is associated with improved clinical outcomes. Additional data will be collected to validate the timeliness of nutrition in those patients meeting criteria. Since early nutrition is supported by the evidence in improving patient outcomes and usually cost effective, the use of algorithm will be disseminated to all clinical areas for adaptation to other patient populations. The major challenge of this endeavor is its complexity. One of the limitations of the study is identifying the root causes of nutrition delay and determining different strategies to enhance sustainability of the project. The major success includes engagement of major stakeholders from three disciplines in supporting a change in practice.

Selected References

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Keywords

Evidence-based practice, early enteral nutrition, timely nutrition in critical care, nutrition in mechanically ventilated patients, 24- 48 hours tube feeding in mechanically ventilated patients.