ICU organisation and outcomes 2

000137 - Delayed step-down from ICU is associated with delayed admissions to ICU and increased mortality

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Introduction

The UK has less Intensive Care Unit (ICU) beds per population than other European countries. Bed occupancy is often over 90% in many ICU's. One contributing factor is a lack of available beds in hospital wards for patients to be transferred to when they no longer require ICU. This results in "bed-blocking" in ICU. Few studies have assessed the impact of "bed-blocking" on emergency admissions to ICU.

Methods

Data was prospectively collected for all patients referred to ICU in our hospital between October 2017 and September 2018. Patients were classed as "delayed admissions" (DA) if ICU admission was delayed by more than 4 hours due to "bed-blocking". Patients were classed as controls if they were admitted to ICU within 4 hours. The Student's t-test compared APACHE-II scores, ICU and hospital mortality rates, and standardised mortality ratio (SMR) in both groups. Odds ratio of death was calculated in the DA group.

Results

There were 555 patients in the control group and 95 in the DA group. APACHE-II scores were similar: controls = 15.7, DA = 15.8, P=0.87. ICU mortality was increased in the DA group (21.0% vs 14.1% in controls; P=0.04). Hospital mortality was increased in the DA group (25.2% vs 20.1% in controls; P=0.04).   SMR was 0.94 in controls and 1.05 in the DA group. Odds ratio of death in the DA group was 2.06 (95%CI: 1.22 - 3.47; P=0.007). There were 7 additional deaths in the DA group above that expected.

Conclusion

We have demonstrated increased mortality in patients who have a delayed admission to ICU, despite similar APACHE-II scores to patients admitted within 4 hours. Our hospital has now introduced a policy of always having at least one bed available for emergency admissions, if there are "bed blockers" in ICU. We hypothesise that this will reduce our unit mortality. We recommend other hospitals with high ICU bed occupancy introduce a similar policy.

000149 - Evaluation of the Simplified Acute Physiology Score III (SAPS III) in patients undergoing Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy (CRS-HIPEC), and its usefulness in predicting postoperative morbidity and mortality

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Introduction

Cytoreductive surgery with Hyperthermic Intraperitoneal Chemotherapy (CRS-HIPEC) 1 is a complex procedure with considerable risk of postoperative morbidity and mortality, often requiring intensive care management. The Simplified Acute Physiology Score III (SAPS III) 2 is a predictor of mortality in intensive care units.

Objectives

The study aims to evaluate the usefulness of SAPS III score in predicting postoperative morbidity and mortality in patients undergoing CRS-HIPEC.

Methods

We did a retrospective evaluation of 69 patients undergoing CRS-HIPEC at our institute from January 2013 to September 2018.

SAPS III scores were calculated for all patients at 24 hours of surgery. Relevant data including peritoneal carcinomatosis index (PCI), American society of

Anaesthesiologists (ASA) status, modified frailty index (MFI) and ninety-day mortality (90DM) was collected.

Morbidity included

1. Prolonged ventilation (PRMV) defined as invasive ventilation beyond 48 hours.
2. Prolonged shock (PRSK) as vasopressor support beyond 48 hours.
3. Pneumonia (PNEU) according to the 2008 CDC/NHSN surveillance definition of pneumonia 3.

    4. Surgical complications (CDI), grade III and above, according to the Clavien-Dindo classification 4.

Results

Our study had 17 male and 52 female patients. The mean PCI was 16.9 (±11.9). PRMV occurred in 20.3%, PRSK in 31.9%, PNEU in 40.6%, CDI in 18.8% and 90DM in 15.9% of the patients.

SAPS III scores showed a significant correlation with PRMV (p 0.001), PRSK (p 0.001), PNEU (p 0.001), CDI (p 0.003), and 90DM (p 0.001). ASA status corelated with PNEU (p 0.02). PCI had significant correlation with PRMV (p 0.001), PRSK (p 0.001) and PNEU (p 0.001) but not with CDI or 90DM. MFI had no significant correlation with any of the outcome measures.

The discriminative value of SAPS III scores in predicting postoperative mortality and morbidity was good with area under the ROC curve (AUC) of 0.94 (0.77-1.0) for PRMV, 0.86 (0.77-0.95) for PNEU, 0.84 (0.75-0.94) for PRSK and 0.78 (0.59-0.97) for 90DM but AUC was 0.68 (0.49-0.86 for CDI. The standardised mortality ratio for SAPS III predicted mortality and 90DM was 0.73.

PCI, ASA status and MFI failed to predict adverse outcome with AUC of 0.58 (0.41-0.74), 0.50 (0.27-0.62) and 0.51 (0.28-0.65) respectively.

Conclusion

Initial SAPS III scores at 24 hours of CRS HIPEC surgery is a useful predictor of ninety-day mortality and complicated postoperative recovery and can be utilised to identify patients who may require prolonged intensive care postoperatively. PCI, ASA status and MFI are inferior predictors.

000150 - Use of checklists for percutaneous dilatational tracheostomy in the intensive care unit

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Introduction

Percutaneous dilatational tracheostomy (PDT) is a common ICU procedure, which can lead to serious complications. To improve patient safety, checklists are widely used in the operating room, based on evidence-based guidelines showing a reduction in perioperative complications. However, checklists for PDT are not widely used in the ICU. We introduced PDT checklists in the ICU in January 2014 (revised in July 2015, with improved availability facilitating their use).

Objectives

The purpose of this study is to determine whether the efficiency and safety of PDT was improved after the introduction of checklists.

Methods

This retrospective observational single center study was performed in a medical-surgical ICU in an urban tertiary hospital. All consecutive patients over 20 years of age who underwent PDT in the ICU between January 2012 and March 2017 were included. General ward patients admitted to the ICU only to undergo PDT were excluded. After introducing a revised checklist with increased availability facilitating their use in July 2015, patients were allocated to three groups: 1) before introduction of PDT checklists (pre CL group, January 2012-December 2013, n=29), 2) after introduction of PDT checklists (old CL group, January 2014-June 2015, n=46), and 3) after revised checklists (new CL group, July 2015-March 2017, n=50). Patient demographics including age, gender, body mass index, APACHE II, SOFA score, duration of mechanical ventilation before PDT and ICU length of stay were recorded. As efficiency and safety outcomes, procedure time and the rate of complications related to PDT were respectively determined. EZR, a graphical user interface for "R", was used for data analysis. $P < 0.05$ was significant. Results are presented as a value (%), mean±standard deviation, or median [interquartile range].

Results

There were 6048 patients admitted to the ICU during the study period, including 127 patients (2%) who underwent PDT. Two (1.5%) were excluded because they were admitted only for PDT. There was no difference in gender, body mass index, APACHE II, and SOFA score between the groups. The old CL group was younger than the new CL group (68 vs. 74.5 years, p=0.013). The duration of mechanical ventilation before PDT was longer in the pre-CL group than in the new-CL group (14 vs. 9 days, p=0.037). The ICU length of stay decreased (28d: pre-CL group, 19d: old-CL group, and 12d: new-CL group, p=0.000011). Significant differences in PDT procedure time were observed between groups. (31 [26-44] vs. 31 [21-55] vs. 22 [17-32] minutes, p= 0.0056), showing that PDT procedure time after introduction of the new CL was significantly decreased. The rate of complications related to PDT was not significantly different between the groups (4 [13.8%] in pre-CL group, 7 [15.2%] old-CL group, and 3 [6.0%] in new-CL group, p=0.32).

Conclusion

Although the introduction of the PDT checklists does not reduce the rate of complications, a significant decrease in PDT procedure time was observed, after introduction of the new-checklists with active facilitation of their use. Periodic revision of PDT checklists with active use may be necessary to see further improvements in efficiency and safety of the procedure.

000162 - Rapid Response Team Implementing in Night Shift and Weekend Decreased the Incidence of In-Hospital Cardiac Arrest in Surgical Wards

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Introduction

Surgical patients' clinical conditions change rapidly, because of postoperative physiological abnormalities may causing first-aid events. Due to general short-handed in nursing power in all the island, most of the caring power in the ward are relatively inexperienced. In addition, the patient nursing ratio is especially large

during the night shift. The caring ability, especially for the emergent situation, is lacking which may lead to a catastrophic result. We need an objective assessment tool and a rapid response team for rescue in those situations. We expect the implementation of early detection and early treatment in night shift can improve patient safety.

Objectives

Our purpose is to Investigate the efficacy of implementation of Rapid Response Team in an eastern Taiwan medical center.

Methods

We set clinical alarm system including the modified National Early Warning Score(modified-NEWS) and rapid response team(RRT) in the surgical wards. We educated the floor members of early warming score and set the policy of initiate RRT during the duty time. We recorded the incidence of IHCA in 38 months including the pre-implementation period (10/2015~04/2017) and post-implementation period (5/2017~11/2018), and evaluate the trend of IHCA.

Results

Compare the incidence of IHCA in 19 months (10/2015~04/2017 VS. 5/2017~11/2018). We found the incidence of IHCA from 1.32 times/month decrease to 0.47 times/months after the intervention of RRT. The intervention-group was 0.36 times less to no-intervention period.

Conclusion

RRT setup with using of Modified-NEWS scoring system may reduce the incidence of IHCA in surgical wards. We will follow the long term efficacy and the economic benefit for feasibility to extend the policy to other specialties in our hospital.

000187 - Critical Care Outreach Round helps the Implementation of Rapid Response System

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Introduction

Rapid Response Team (RRT) / Medical Emergency Team (MET) was developed to prevent unexpected deterioration especially in US and Australia. However, There are some difficulty to implement RRS with misunderstanding and barriers. We established RRT with Critical Care Outreach Round (CCOR) to educate Rapid Response System (RRS) for general wards at Osaka City General Hospital since 2012.

Objectives

We evaluate whether CCOR is useful or not to implement RRS.

Methods

CCOR was defined as a retrieve system that RRT visits general wards and assesses the patients satisfied with our RRS criteria. RRT visited to general wards at day-shift, in addition, RRT visits any patients whenever ward staff activates RRS on call. We issued the questionnaire about our RRS for all general ward staffs, and compared into two groups (CCOR group n=137 vs non-CCOR group n=321).

Results

Totally RRS were administered for 2575 times from 2012 to 2016, and 1098 patients were treated by RRT. 185 patients (17%) were transferred to ICU. From the questionnaire, there was no significant difference in both groups about necessity of RRS and understanding objective of RRS. But understanding RRS activation criteria is higher in CCOR group ($p<0.01$).

Conclusion

RRS is introduced at some Japanese hospital, though there are some conflicts and barriers between ICU and general ward staffs. However, new culture of RRS is getting a place with absolute certainly. Furthermore, CCOR is one of great method to understand and implement RRS for general ward staffs.

000194 - Association of Anesthesia Mode with CVD events in Lower Limbs Fracture Surgery - A Nationwide Population-Based Study

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Introduction

Lower limbs fracture is a very usual problems may occurred, especially in the elderly patient. Those patients who received surgery, do have a high incidence of complications and events on morbidity. Both general or neuraxial anesthesia mode will influence the postoperative outcome was addressed in the past studies. Some studies illustrate the superiority of neuraxial anesthesia to general anesthesia in reduce incidence of deep vein thrombosis (DVT), myocardial infarction, hypoxia, and mortality, some retrospective meta-analysis were in difference opinion. In patients receiving general anesthesia, will decrease the incidence of cerebrovascular accidents, complication and mortality.

Objectives

The impact of anesthetic mode on outcome for lower limbs fracture orthopedic surgery has been addressed. Most studies have reveal that there is no significant difference in cardiac events between general and neuraxial anesthetic mode. But still few of study shows in difference opinion on this topic, this study is aims to determine using alternative mode of anesthesia with CVD events.

Methods

We used the Longitudinal National Health Insurance Research Database for this draw close case control study. In total 6319 selected patients with lower limbs fracture orthopedic surgery from 2010 to 2012 were included as the study group, and excluded diagnosis of CVD before index date (N=4449) and excluded anesthesia surgery again during study period (N=3437). Then divided in to two groups, N=1504 general anesthesia, N=1933 neuraxial anesthesia.

Results

There was no significant difference in CVD events between two groups of anesthesia mode. General anesthesia group with crude HR 1.02 (95% CI 0.67-1.56), adjusted HR 1.24 (95% CI 0.8-1.92).

Conclusion

Both anesthesia modes does not shows variable in CVD events, but groups appears increase incidence of CVD events in old age subgroup. There is limited quantitative facts to conclude that which anaesthesia mode is associate to reduces the CVD events.

000210 - Keeping safe during intra-hospital transport of critically ill patients

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Introduction

Critically ill patients are at increased risk of morbidity and mortality during transport. Hence, the Hospital Patient Safety Annual Goals 2018-2019 from Joint Commission of Taiwan has indicated one of strategies was that: implement risk management and standard operating procedures for transshipment patients. An audit of 3256 intra-hospital transports of ICU patients reported a completion rate of 84.1% in 2017.

Objectives

Nursing department, medical quality management center,department of medical,respiratory therapy department, office of general affairs were involved to be a team, in order to establish the transport operation guideline and improve a teamwork.

Methods

There were 4 implementation strategies:(1)Established guideline for patient transports, includes: the patient's severity classification, escort qualification and level, and monitoring and equipment required during transportation should be fully evaluated during the process;(2)Design ticket-to-ride;(3) Simulation-based training and education;(4)Audits to assess the members' three abilities, including cognition, affection and technical skills.

Results

Regarding these strategies, we gained effective outcomes as follows:(1) compliance rate of intra-hospital transports of critically ill patients increased up to 92.2% in 2018;(2)preparation period for patients transport shortened from 7 minutes to 3 minutes.

Conclusion

These guideline and ckecklist promote measures to ensure safe patient transport. Furthermore, the team members found out that the qualities of care need

interdisciplinary collaboration and cooperation. The transport plan should be developed by a multidisciplinary team.

000170 - The pereformance of ABCDE bundle can improve the outcome of patients with Acute Respiratory Failure in the Intensive Care Unit

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Introduction

Acute respiratory failure (ARF) followed by the use of mechanical ventilation (MV) may increase mobility and mortality in intensive care unit (ICU). The performanceof bundle care may improve the outcome of those patients.

Objectives

 This study was to find the impact of ABCDE (daily **A**wakening, **B**reathing trial, drug **C**oordination, **D**elirium survey and treatment, and **E**arly mobilization) bundle on the outcome of MV patients with ARF in the ICU.

Methods

The study was conducted in a 19-bed medical ICU of a medical center in Southern Taiwan. An Interdisciplinary Team initiated the protocol within 72 hours of mechanical ventilation when patients become hemodynamically stable (no vasopressor and a fraction of oxygenation<60%). We performed daily sedation interruption, coordination and avoidance of benzodiazepine as possible, and kept patients awake and ventilator weaning trail as tolerable condition. We used the Confusion Assessment Method for the ICU (CAM-ICU) for delirium survey. We also performed a four-step mobilization program to improve cardio-pulmonary function. The study periods were divided to phase 1 (before improvement, from Dec 1, 2015 to Mar 31, 2016), education (from Jul 1 to Sep 30, 2016) and phase 2 (after improvement, from Oct 1 to Dec 31, 2016). All demographic and clinical variables, comorbidity and laboratory data were collected. The endpoint was the impact of ABCDE bundle on the outcome of ARF patients with MV, and the factors to influence ICU stays.

Results

Compared between phase 1 and phase 2, there were some differences, including disease severity, blood urea nitrogen (BUN) and Creatinine level. The patients in phase 2 had a significantly lower mean ICU stay (8.0 vs.12.0 days), medical costs (22.1 vs. 31.7 X10000 New Taiwan Dollars) and mortality (8.3 vs. 36.6 %). The associated factors of shorter ICU stays by using Hierarchical regression model included: higher body mass index and hemoglobin, lower BUN and ABCDE bundle.

Conclusion

The performance of ABCDE bundle can improve the outcome of ARF patients with MV, especially on the ICU stays, as evidenced in the literatures. We will apply the successful experiences to the other ICUs in our hospital, and may serve as a benchmarking for other hospitals in Taiwan.

000135 - The use of MR-proADM to predict ICU admission in sepsis code activated patients

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Introduction

Few studies have evaluated biomarker performance to predict ICU requirement in patients following sepsis detection. Accordingly, this study compared the performance of MR-proADM, PCT, CRP and lactate in comparison to the SOFA score following sepsis code activation in the emergency department (ED) and hospital ward (HW).

Objectives

Comparison of blood biomarkers and clinical scores as potential tools for predicting intensive care (ICU) admission in patients activated by the in-hospital sepsis code (ISC).

Methods

A prospective, observational study of consecutive patients fulfilling the criteria for ISC activation. Patients were enrolled between December 2016 to August 2017, excluding those who were either <18 years of age, pregnant, or where no surplus blood was available. Clinical and microbiology characteristics were recorded on ISC activation or added retrospectively, with survival status followed up at 28 and 90 days. Mid-regional proadrenomedullin (MR-proADM), procalcitonin (PCT), C-reactive protein (CRP) and lactate were analyzed by TRACE, chemiluminescent immunoassay, immuno-turbidimetric and enzymatic color tests, respectively.The association with mortality was assessed using area under the receiver operating characteristic (AUROC) curves and univariate Cox regression. The study protocol was approved by the Clinical Research Ethics Committee of Vall d'Hebron University Hospital, with the need for informed consent waived.

Results

148 patients (63.1 [15.2] years; 63.8% male) were enrolled after activation of the ISC, of which 43 (29.1%) were activated in the ED, 70 (47.3%) in the HW and 35 (23.6%) in the ICU. The 28-day mortality rate was 22.3% (N=33), with a higher mortality in patients enrolled on the ward (N=17; 24.3%) and ICU (N=8; 22.9%) as opposed to the ED (N=8; 18.6%). MR-proADM, lactate and SOFA values were all significantly elevated in non-survivors as opposed to survivors (all p <0.01), whereas no significant differences were found in PCT and CRP values. Based on final clinical diagnosis, 130 (87.8%) patients were found to have an infection. The ability of each parameter to predict 28-day (N=28; 21.5%) and 90-day (N=32; 24.6%) all-cause mortality was subsequently compared within the infected patient population. MR-proADM had the greatest value in predicting 28-day mortality (optimal cut-off: 4.3 nmol/L; sensitivity and specificity: 0.76 and 0.65), followed by SOFA and lactate. No significant association was observed with either PCT or CRP. Similar results were obtained for 90-day mortality prediction. ISC activation in the ED and HW resulted in similar rates of ICU admission (ED: N=16, 41.0% and HW: N=28, 45.9%). AUROC analysis found that MR-proADM had the greatest accuracy in predicting admission from the ED, with an optimal cut-off of 3.1 nmol/L (sensitivity and specificity: 0.81 and 0.65), closely followed by the SOFA score. Similar results were also found after univariate logistic regression analysis. Conversely, the predictive value of all biomarkers and scores decreased when measured on the HW.

Conclusion

MR-proADM can more accurately predict ICU admission compared to other biomarkers and scores in patients activated by the ISC. Its incorporation as a tool for the initial evaluation of sepsis patients may be of significant clinical value.

000136 - Exploring the Palliative Care Consensus of Critical Ill and End-of-

Life Renal Patients among the Hospitalist Care Team in a Tertiary University Hospital: A Focus Group Study

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Introduction

When the Right to Patient Autonomy Act is in force in 2019, the medical and nurse staffs must pay attention to respect the needs of the critical ill patients'rights to have good death. The experts' consensus of promoting palliative care to critical ill and end-of-life (EoL) renal patients was initially obtained by RAND/UCLA Appropriateness Method in a project authorized by the Ministry of Health & Welfare in January 2016. However, the consenus among the frontline care teams is still unclear in Taiwan.

Objectives

This study aims to explore the palliatice care consensus of Critical Ill and EoL renal patients through the focus group method for promoting renal palliative care among the hospitalist care teams (HCTs) in Taiwan.

Methods

Two focus group sessions were held to collect the opinions of hospitalist care team in a tertiary university hospital during June and September 2016. The volunteered participants in the hospitalist care team were recruited. Each group session lasted for about 120 minutes under the guidance of two predesigned topics in the group discussion: (1) how to identify the EoL renal patient groups; and (2) the difficulities encountered while promoting renal palliativecare in clinical practice. Word-to word recording transcription was analyzed by the NVivo qualitative software.

Results

Opinions of the 13 participants, included 5 hospitalist physicians, 7 nurse practitioners, 1 nursing director were grouped into four major concept groups and 17 subgroups (subgps): (1) the thinking logics and formation of EoL decision making (11 subgps) ; (2) the value of quality of life versus life expectancy amonng the EoL renal patients (1 subgp); (3) the patient's understanding of EoL (2 subgps); (4) The

observation and operative definitions of EoL from different disciplines and the choices of EoL values (3 subgps). The major difference between the experts' and HCTs' consensus was diverse short-term prognosis prediciton is difficult if those patients or thier family insisted to receive renal replacement therapy to the end.

Conclusion

These findings provided evidence of variety of needs relating to advance care planning of critical ill and EoL renal patients that should be addressed by continuing medical education, based on the diverse clinical experiences among HCTs. To formulate the policy of promoting palliative care, high consensus indicators should be identified and given priority to share decision making with patients and family in daily practice.

000138 - Effects of showing patients pictures of themselves taken during ambulation on mobilization and incidence of delirium after cardiothoracic surgery

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Introduction

Early mobilization is recommended to reduce the incidence and duration of delirium and improve outcomes after cardiothoracic surgery. Self-esteem is required for successful early mobilization, as considerable work is needed from both patients and caregivers. Showing patients pictures of themselves taken during ambulation may help them recognize their situation, lead to improved self-esteem and reduce the incidence of delirium.

Objectives

To evaluate the effect of showing patients pictures of themselves taken during ambulation on mobilization and incidence of delirium.

Methods

Patients who underwent cardiothoracic surgery and were discharged to their home during the study period were included. Exclusion criteria were preoperative activities of daily living of bed rest level, postoperative use of an intra-aortic balloon pump and post-operative stroke. From January to April 2016, patients who were not shown pictures of themselves during ambulation (n-SP) were enrolled, and from July 2016 to January 2017 patients who were shown pictures of themselves were enrolled (SP). We evaluated the APACHE Ⅱ score/predicted mortality, incidence, classification, and duration of delirium, ICU stay, time from bed rest to sitting on the edge of the bed, standing, and walking (100m, 200m). The Confusion Assessment Method for the ICU was used to evaluate delirium. Data were expressed as median (IQR) and compared using the Wilcoxon signed-rank test. A p value <0.05 was considered statistically significant. The study was approved by the Institutional Review Board of Yamagata University Faculty of Medicine.

Results

There were no significant differences in APACHE Ⅱ score/predicted mortality between groups (n-SP group, 13 [10-14]/5.3% [3.4-8.0%]; SP group, 13 [10-14]/5.3% [3.5-5.7%]). The n-SP group achieved sitting on the edge of the bed and standing on postoperative day 3 [2-4]; no patient walked 100m or 200m. The SP group achieved sitting on the edge of the bed, standing, and walking on postoperative day 1 [1-1], walking 100m on postoperative day 2 [1-2] and 200m on postoperative day 3 [2-3]. The SP group required significantly less time to achieve sitting on the edge of the bed and standing (P>0.001). The incidence of delirium was 37.5% in the n-SP group and 11% in the SP group (P>0.02). The duration of delirium was 2 [2-3.3] days in the n-SP group and 2 [1.5-2] days in the SP group. These results suggest that showing patients pictures of themselves during ambulation facilitated early mobilization and lowered the incidence of delirium. For facilitating early mobilization, not only patients, but also caregivers require self-esteem, and photographs may be a more efficient tool than words for staff members. Although we have not assessed patient recognition of circumstances, showing patients pictures of themselves may have improved recognition and reduced the incidence and duration of delirium in our study.

Conclusion

Showing patients pictures of themselves during ambulation promoted early mobilization and decreased the incidence of delirium.

000163 - Interprofessional Communication in Neuroscience

Intensive Care Unit (NICU) for Palliative Care Patients at a Tertiary Centre in Singapore

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Introduction

Interdisciplinary ICU team meetings offer a broader range of perspectives and resources to support the staff and emotionally-burdened families and are essential to achieve appropriate goals of care for critically ill patients. Such family meetings conducted early have important outcomes for families, patients and healthcare systems.

Objectives

We aimed to achieve a multidisciplinary family meeting by day 5 of ICU stay for palliative patients in NICU using ICU communication tool kit to improve staff and family's satisfaction and interprofessional communication. The tool kit included meeting planner, guide for families and documentation template that outlined the content of discussion. We measured the proportion of target population which achieved first multidisciplinary family meeting by day 5 and compared ICU team satisfaction score, family's satisfaction score and ICU length of stay pre and post intervention.

Methods

ICU patients were selected for palliative care using the following criteria.

- GCS </= 6 with sedation or patients with "Do Not Resuscitate" orders
- Severe hypoxic ischaemic encephalopathy
- Severe intracerebral haemorrhage
- Severe traumatic brain injury as deemed unsalvageable by neurosurgeon

Satisfaction surveys for family and staff were conducted before and after the intervention. Data were analysed using SPSS version 19.0. Independent T test was used to test the difference in ICU length of stay between the two groups.

Results

Baseline characteristics (age, gender, ICU and hospital outcome, APACHEII) of the patients were comparable in both groups. First multidisciplinary family meetings by day 5 of ICU stay were achieved in 90.9% of the target population. For team

satisfaction survey, there was statistically significant improvement in 3 out of 5

Measures	Median (IQR)		P value
	Pre [n=20]	Post [n=22]	
Interprofessional communication to clarify on the goals of care	8.00 (2.00)	9.00 (4.00)	0.029 [a]
Communication with patient and family about the goal of care	8.00 (3.00)	9.00 (1.00)	0.140 [a]
Elicit and respect patient's and family preferences regarding goals of care and treatment	8.00 (2.00)	8.00 (2.00)	0.589 [a]
Assess the family's knowledge of the patient's wishes and treatment goals if the patient lacks the decision-making ability	7.00 (2.00)	9.00 (2.00)	0.011 [a]
Establish realistic and appropriate goals of care in consultation with the patient and/or family	8.00 (1.00)	9.00 (2.00)	0.002 [a]

[a] Mann Whitney Test

measures assessed.

However, there was no significant change in median score pre and post for family satisfaction survey on ICU experience and decision making. The length of ICU stay post intervention were longer compared to pre (Mean (SD): 4.37 (3.12) vs 8.25 (5.73), p=0.009).

Conclusion

Early multidisciplinary family meetings can be achieved with the use of ICU communication tool kit to improve staff satisfaction and interprofessional communication for the team managing critically ill patients with poor neurological outcome. Further study in a bigger sample size is needed to identify other confounding factors and elucidate the impact of communication tool kit on family's satisfaction and ICU length of stay.

000209 - Let's get out of the ICU, together with family

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Introduction

Post-intensive care syndrome, which is often developed in critically ill patients, greatly affects patients' and their families' QOLs after discharge. To minimize the symptoms, ABCDEF bundle has been introduced. Early mobility and exercise is necessary for better outcomes for critically ill patients, possibly preventing ICU-acquired weakness and post-intensive care syndrome. Family engagement and empowerment are also important. At our hospital, we have implemented activities outside of an ICU (such as strolling in the garden on a wheelchair or taking a bath) as early rehabilitative interventions for ICU patients. We also encourage the patients' family members to participate in the out-of-ICU activities when possible so that they can share the experiences with the patients.

Objectives

Here we describe our early mobilization outside of the ICU approach, and we report its feasibility, safety, and barriers.

Methods

We retrospectively investigated the cases of critically ill patients who engaged in one or more out-of-ICU activities for early rehabilitation at our hospital between January 2015 and January 2019. We defined "critically ill" as SOFA of ≧10, and/or being on a ventilator for ≧3 days. We excluded patients who died within 3 days of being admitted to the ICU.

Results

There were 79 critically ill patients. Thirty-eight of the patients (48%) engaged in out-of-ICU activities, including 28 of strolling indoors, 35 of strolling outdoors with or without a family member, 14 of taking a bath, and 6 of other activities. No unscheduled extubations or accidental removals of vascular access lines occurred, and no severe deterioration of vital signs was observed.

Conclusion

This aggressive approach of early mobilization has 2 characteristics: getting the patient out of the ICU and having family members involved. To implement this approach, multiproffesional team members who are experienced in working with critical ill patients must participate. We believe this approach helps not only the patients' physical and mental recovery but also their families' ability to cope with the patients' critical condition.

000154 - Implementing effective strategies to optimize pain-sedative management to improve the quality in trauma ICU

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Introduction

Pain, agitation, and delirium (PAD) are common in critically ill patients. Unfortunately, the majority of patients at medical and surgical intensive

care units (ICUs) experience significant pain during their ICU stay, both at rest and associated with movement and procedures. Failure to proper of sedation and analgesia will have deleterious sequele that are associated with an increase in adverse events, poor outcomes, longer ICU stays and economic effects. According "eCASH" (early Comfort using Analgesia, minimal Sedatives and maximal Humane care) concept, minimal sedative use and the utilisation of analgesia-first approaches are advocated as best practice. We developed the Visualization of Pain–Agitation-Delirium (V-PAD) platform for clinicians to perform the "eCASH" based-PAD management strategies in critically ill patients.

Objectives

Administration of "eCASH" concept, and developed the V-PAD platform to management of pain-sedative for optimize patient comfort and minimizing distress to improve clinical outcome.

Methods

We conducted a retrospective of propensity-score matched case-control study with patients aged 18 years or older for admission to Trauma ICU of Kaohsiung Chang Gung Memorial Hospital (KCGMH) between January 2014 to August 2016 (pre-PAD) and September 2016 to August 2017 (post-PAD). Patient's age, sex, weight, diagnosis on admission, analgesia and sedation agent used, and other pertinent clinical data were collected. Patients in post-PAD group were matched with pre-PAD under a ratio of 1:1 by age, gender, intubation status, APACHE-2, SOFA, charlson index, surgical condiction and the length of stay before transfer to ICUs. Main outcome measures are overall mortality, LOS of ICU, LOS of hospital, ventilator days and healthcare costs in ICU.

Results

During the study period, 2105 patients were admitted to ICUs, 954 patients were selected (1:1) after propensity score matching. Post-PAD bundle implementation, the number of patients received of continuous infusion of analgesia was not significantly changes (21.8% vs. 27.0%; p=0.06), but the frequency of the intermittent analgesia therapy was significantly decrease (10 [IQR 5-20] vs, 5 [IQR 3-10]; p<0.0001), and significantly decreased sedative use (5.7% vs 2.1%, P=0.004). Median duration of mechanical ventilation appeared shorter with post-PAD (2 days [IQR, 1-4]) vs pre-PAD (2 days [IQR, 1-5]; P =0.03), length of ICU stay with pre-PAD (3 days [IQR, 2-5]) vs. post-PAD (3 days [IQR, 2-4]; P<0.001), length of hospital stay with pre-PAD (17 [IQR, 12-28]) days) vs. post-PAD (16 [IQR, 11-25] days; P=0.04), and the ICU cost with pre-PAD ($3,653 [IQR, 1,882-5,853] vs. post-PAD ($ 3,126 [IQR, 1,698-5,247]; P=0.018). There was no significant difference in mortality in ICU.

Conclusion

Implementation the "eCASH" based V-PAD platform can provide effective of management of PAD to improve clinical outcomes in the ICU.

000155 - The Relationship of Thickness of Rectus Abdominis Muscle and Prognosis in Surgical Critically-ill Patients without Abdominal Surgery

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Introduction

Prolonged mechanical ventilation and length of stay in the intensive care unit result in significant impact to the prognosis of critically ill patients. Early identification of patients with risk of prolonged mechanical ventilation may help provide better management and decrease cost of car

Objectives

In this study we investigated the relationship between the thickness of rectus abdominis muscle and prognosis admitted to surgical intensive care unit due to conditions unrelated to abdominal surgery.

Methods

Patients admitted to surgical intensive care unit (SICU) of Kaohsiung Veterans General Hospital received measurement of thickness of the rectus abdominis muscle of upper abdomen. Patients underwent abdominal operations were excluded from analysis. For patients staying in the SICU for more than 1 week, sequential ultrasound evaluation was done weekly. Other data, including patient characteristics, body mass index (BMI), APACHE II score on admission to SICU, and SOFA score on the day of ultrasound examination, the duration of mechanical ventilation, the length of stay in SICU, and final outcome of the patients, were recorded and analyzed. Statistical analysis was performed with GraphPad Prism version 6.07, and statistical level of significance was set at 0.05.

Results

During the studying period, 32 measurements of the thickness of rectus abdominis muscle were done in 21 eligible patients. All patients received mechanical ventilation

except one. 12 patients were transferred to SICU after operation (9 patients received major operation for head and neck cancer). 9 patients were transferred to ICU due to medical condition (4 patients were transferred due to acute respiratory failure). The mean age of the patients was 65.62 ± 13.80, and the mean duration of mechanical ventilation and length of stay in ICU were 14.00 ± 20.76 and 14.14 ± 16.17 days, respectively.

Eventually there were 5 patients failed to wean mechanical ventilation, and 8 patients received mechanical ventilation for more than 1 week. The BMI to thickness of rectus abdominis muscle ratio was significantly correlated to length of stay in SICU. Among patients failed to wean mechanical ventilation within 7 days after examination, APACHE II score, SOFA score, and BMI to thickness of rectus abdominis muscle ratio, were significantly higher. And in patients failed to survive, the SOFA score and BMI to thickness of rectus abdominis muscle ratio were significantly higher. Using receiver operating characteristic curve and Kaplan-Meier analysis, we found that higher BMI to thickness of rectus abdominis muscle ratio was associated with shorter survival time.

Conclusion

Measuring the thickness of rectus abdominis muscle of ultrasound was easy to perform. SOFA score and BMI to thickness of rectus abdominis muscle ratio were related to prolonged mechanical ventilation and in-hospital mortality of SICU patients. Larger prospective study is required to further consolidate current finding.

000174 - Delirium in ICU: Incidence, risk factors and mortality

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Introduction

Although delirium has been considered one of the most frequent types of organ dysfunction, its incidence and risk factors reported are significantly variable. Likewise, there is growing evidence that at short term, delirium is associated with worse clinical outcomes, even mortality.

Objectives

We aim to determine the incidence, risk factors, and impact on mortality of delirium in ICU patients.

Methods

Cohort, observational, single-center study. For 5 months we included adults that were admitted to the ICU. We applied the *Confusion Assessment Method for Intensive Care Unit* CAM-ICU daily since admittance. We performed a multivariate analysis.

Results

One hundred-ninety two patients were included, 85 (44,3%) were woman, average of age 64,9 (±17,2), APACHE II of 15,4 (±7,9). The incidence of delirium was 33,9% (n=65). In hospital mortality was 33,3% (n=64). The main factors associated with delirium were age, APACHE II score and use of sedation and benzodiazepines. Delirium was associated with longer stay in ICU and mechanical ventilation (Table 1). In the multivariate analysis, delirium showed to be an independent predictor of mortality OR 3,4 IC 95% 1,6 – 6,7.

Table 1. Main variables and outcomes associated with delirium.

	Delirium	
	with (n= 65)	without (n= 125)
Age (y)	72,4 (±15,7)*	60,9 (±16,6)*
APACHE II	18,8 (±6,8)*	13,5 (±7,9)*
Midazolam use (n)	16 (25%)*	6 (5%)*
Fentanyl use (n)	28 (43%)*	24 (19%)*
ICU Lenght of Stay (d)	10,6 (±8,8)*	6,2 (±4,6)*
MV Lenght of Stay (d)	5,3 (±0,67)*	3,1 (±0,46)*
In-hospital Mortality (n)	35 (54%)*	29 (23%)*

Conclusion

Delirium has a high incidence in ICU and is strongly associated to higher mortality. On the other hand, there are other risk factors associated that have been identified and could be target of future interventions.

000213 - E-health with wearables in telemonitoring Early Warning Scores outside the ICU - the smart band aid -

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Introduction

Telemonitoring outside the ICU is scarce. But with innovative wearables measuring respiratory and heart rate wirelessly, culture on intrahospital telemonitoring should definitely change. However, culture has been known to be one of the most crucial success factors in innovation, especially in health care. Human design thinking is a promising tool in health care innovation but rarely used in a multidisciplinary team to change innovation culture and stimulate sustainable collaboration.

Objectives

The aim of this study was to initiate a pilot project with a multi disciplinary team to start using wearables for Early Warning Score (EWS) on a clinical ward.

Methods

Human Design Thinking was used to write a value proposition on wearables in neutropenic hematologic patients on the ward in an academic medical hospital. A multidisciplinary team was performed to cover all disciplines involved in the technical, clinical and administrative parts of the project. A vendor was chosen based on its product specifications in relation to the present hospital monitoring infrastructure. In design thinking sessions critical appraisal of multiple factors telemonitoring factors was performed by sub teams and a Canvas projectplan was constructed.

Results

The project team was formed of registered nurses, physicians, IT-specialist, Electronic Health Record consultants; a critical care physician was appointed as project leader. The main critical factors were i) unseamlessly transmitting of both heart and respiratory rates with appropriate movements filtering on smartphones, ii) direct uploading into electronic health record with automated EWS calculation, iii) nurse driven protocol on EWS follow up. The Canvas projectplan included detailed

goals, activities, deliverables, assumptions, risk, milestones and planning. Philips Healthcare with their IntelliVue Guardian wearable biosensor was the chosen vendor.

Conclusion

Design thinking in a multi disciplinary health care team, "the complete systeem in the room", could positively influence the culture on the use of wearables in EWS monitoring. Scientific evaluation will focus on nurse's acceptance and data storage and is expected in fall of 2019.