Healthcare Organization Commitment

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Commitment Details

Commitment Name
Reducing in-hospital Cardiac Arrests (CA) during Procedural Sedation

What Patient Safety Challenge does your Commitment address?

Commitment Start Date
03/01/2017

How Many Hospitals Will This Commitment Represent
1
Commitment Summary
Seoul National University Hospital (SNUH) performs advanced medical practices such as organ transplantation, robotic surgery and cardiovascular interventions. The admitted patients suffer from cancers, organ failures and rare ailments which need high risk procedures, operations and ICU cares.
Procedural sedation is generally planned under the well-equipped setting outside operating room and performed by practitioners of broad specialties. Patients expect complete recovery after the electively sedated procedure.

However, resuscitation call was not rare during the procedure though the sedated patients are monitored and medical personnel are beside the location.
Korean Society of Anesthesiologists (KSA) database of national medical disputes demonstrates a lack of vigilance in seemingly safe procedures or sedation, non-compliance with the airway management guidelines, and the myocardial infarction are related to major damaging events and half of the events can be avoidable when a standard care is followed. CA during the procedures can be minimized or averted by applying pre-sedation checklist, sedation record and the regular education while confirming each role under patient sedation.

*In-hospital CA is frequent in SNUH.  
*High risk Patient variables of CA: disease, morbidity, operations, procedures  
*Attitude to sedation: short of vigilance in less invasive procedure  
*CA during sedated procedures can be minimized or avoided through educated practices.

Commitment Description & Detail
According to Korean Society of Anesthesiologists (KSA) Analysis for national medical disputes (J Korean Med Sci 2015;30:207), the majority of patients were under 60 years old with ASA physical status I or II (90.5% in 105 cases), had minor surgeries or diagnostic procedures (75 cases, 71.4%). Sedation cases comprise as much as 37.1 % (39 cases). In 92.3% of sedation cases (36/39), sedation was provided simultaneously by the medical practitioners who performed the surgical/diagnostic procedure(s). The database showed respiratory events (53.3%) resulted in permanent/major injury or death which was mainly due to hypoxia secondary to airway obstruction or respiratory depression and difficult tracheal intubation. They concluded worse outcomes did not correlate with preoperative physical status, patient age, or the invasiveness of the procedures. It might be, in part, attributable to the deliberate ignorance of standard of care in ‘simple’ surgical procedures due to an undervalued risk of sedation.

SNUH has frequent CPR cases with inevitable CA cases in the ICUs and wards since many hopeless and terminal patients prefer to stay at the hospital till the end of life. Bedside communication on DNAR (do-not-attempt-resuscitation) is still not popular between caregivers and patients. Among 171 CA cases outside OR and ICUs in 2015, 25 cases
required CPR in the diagnostic and procedural rooms mainly due to inherent patient morbidity, however, human and system factors might function insidiously because medical personnel were near the sedated patients with basic monitoring at the event locations.

Sedation can be induced under various contexts in a university hospital. However, practice guidelines commonly recommend that sedation must be performed by an independent trained medical person not involved in the procedure. In addition, many clinicians are not familiar with the use of a supraglottic airway such as a laryngeal mask for providing rescue ventilation in difficult airway management. Thus, familiarity with difficult airway practice guideline and the skills required to anticipate and manage a difficult airway are essential for safe anesthesia and sedation.

It is generally acknowledged that occurrence of adverse outcomes despite a previously healthy condition or the simple surgical procedure(s) performed causes primarily dissatisfaction of patients and uncertain agony of caregivers, resulting in medical lawsuits.

**Action Plan**
Patient Safety Act went into effect from July 29, 2016 in Korea. Rapid Response Team (RRT) of SNUH was organized on August, 2016 in SNUH to reduce in hospital mortality and CA. Plans for reducing in-hospital CA during procedural sedation will include the following tasks:
- Develop evidence-base practice guideline for sedation by non-anesthesiologists with KSA task force.
- National expert referral cases analysis with KSA Legislation Committee and database implementation.
- Set actionable alarms during purposeful sedation: SPO2, pulse rate, RR (Calson’s success in Mercy hospital).
- Education for RRT and SNUH staff: mask ventilation, supraglottic airway, video laryngoscopy.
- Recommend O2 inhalation during procedures under sedation.
- Encourage ECG, SPO2, Capnography and noninvasive BP monitorings during procedures.
- Check pre-sedation list and keep sedation record.
- Real-time sedation monitoring using EMR by using consultation system.
- Feedback quarterly

**Commitment Timeline**
Quarterly report and review during the action period for 1 year