PIER2018 CONFERENCE
15th & 16th October Grand Harbour Hotel, Southampton

PIER
Paediatric Innovation, Education and Research Network

Improving Assessment of Sedation during Opioid Administration in Children's Pain Management at Southampton Children's Hospital

E Waddington, H Tyrrell
Southampton Children's Hospital

Background

For children receiving opioid pain management, assessment of their sedation level was changed to the conscious level tool AVPU with the introduction of PEWS at University Hospitals Southampton (UHS) in 2012. Despite education around the importance of sedation assessment for these children, in the last 3 years we have seen increasing evidence of inaccurate, or absent documentation of AVPU.

Respiratory depression is the most serious of the opioid adverse effects. Less opioid is required to produce sedation than to produce respiratory depression. Therefore systematic assessment of a patient's sedation level reduces the risk of them reaching the level of sedation causing respiratory depression[1].

Methods

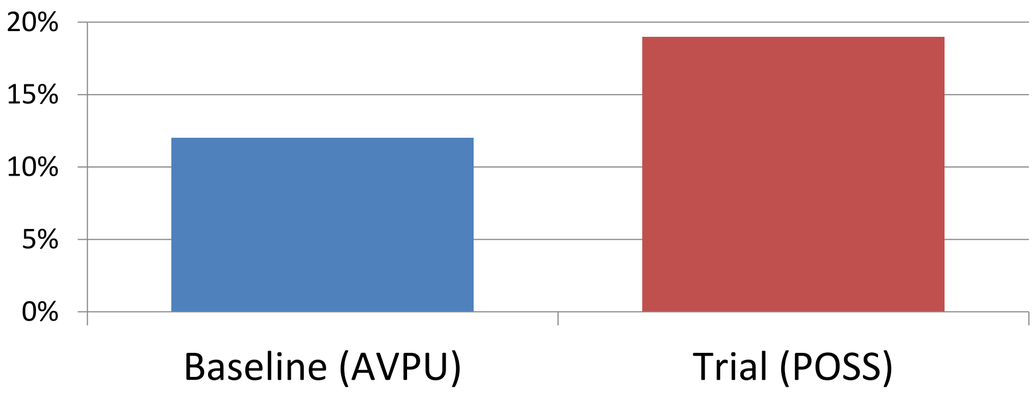
A survey was taken to the Paediatric Pain Travelling Club in April 2017 to explore documentation of sedation/conscious level across the UK.

Retrospective data for all paediatric patients at UHS receiving intravenous opioids in September 2017 provided a baseline for the trial. An adapted version of the Pasero Opioid-induced Sedation Scale (POSS)[1] was trialled on two wards which frequently care for patients receiving opioid pain management.

Outcome Measures:

- Percentage of patients with hourly AVPU/POSS scores documented on Pain Management Observation Chart.
- Percentage of raised AVPU/POSS scores being appropriately escalated to medical staff/pain team.

Complete documentation of conscious/sedation level for duration of opioid intervention



Pasero Opioid Induced Sedation Scale (POSS)

S	1	2	3	4

S = Sleep, easy to rouse (acceptable) [N.B. Patient MUST be roused]

1 = Awake & Alert (acceptable)

2= Slightly drowsy, easily roused (acceptable)

3= Frequently Drowsy, rousable, drifts off to sleep during conversation (Unaccepatble)

4 = Minimal or no response to verbal or physical stimulation (Unacceptable)

	Baseline	Trial
Percentage of patients with no omissions in documentation	12%	19%
Average length of intervention	83 hrs	67hrs
Percentage of intervention time with no assessment documented	8%	8%
Number of raised AVPU/POSS score	0	0
Percentage escalated	n/a	n/a

Results

24 responses were gained from the Paediatric Pain Travelling Club. Over 60% of hospital's reported using a sedation tool alongside AVPU for documenting sedation/conscious level, with 25% using just AVPU. A literature review demonstrated two key sedation tools[1,2]. Results from the survey indicated that over 80% of hospitals would document asleep rather than a score for conscious level, when the child is sleeping at night. Upon seeking in-house peer review of the two sedation tools, the POSS tool was preferable over the Michigan tool[2] due to the inclusion of 'S = sleep, easy to rouse'.

More patients received hourly sedation scores in the trial period compared to AVPU scores in the baseline period. Average length of opioid intervention was comparable between the two data collection periods. There was no change seen to the overall percentage of intervention time with no assessment documented. There were no raised AVPU/POSS scores in either data periods.

Anecdotal user feedback was also gathered during and following the trial. Feedback for POSS was positive; particularly clarification of documentation for when a child is asleep.

Conclusions

By performing systematic assessments of their patients' sedation levels nurses are key to preventing clinically significant respiratory depression. Although no significant improvement in documentation was evident, it remains inappropriate to use a conscious level tool (AVPU) for the assessment of a patient's sedation level. With positive feedback from nurses and no increased risk identified a change in practice was agreed, and POSS adopted. Future audits will continue to monitor its safety.

Education has commenced highlighting that sedation assessment requires the nurse to observe not only how quickly the patient rouses to touch or conversation, but critically once roused, their ability to stay awake. Increased sedation levels prompt a reduction in opioid dose and more frequent monitoring.

1. Pasero, C. (2009) Assessment of Sedation During Opioid Administration for Pain Management. *Journal of PeriAnesthesia Nursing,* 24(3), 186 – 190
2. Malviya, S. Voepel-Lewis, T. Tait, A.R. Merkel, S. Tremper, K. Naughton, N. (2002) Depth of sedation in children undergoing computed tomography: validity and reliability of the University of Michigan Sedation Scale (UMSS). *British Journal of Anaesthesia*, 88(2), 241-5