

Reversal Agent Use: Procedural Sedation

Background

Each year, several thousand patients at BIDMC receive moderate sedation during a procedure in one of the interventional areas. Midazolam, a benzodiazepine and Fentanyl, an opioid, are the most commonly used agents. Both these drugs can lead to excessive drowsiness and depressed respiration. These adverse side effects can be reversed using Flumazenil, which reverses the effects of Midazolam and Naloxone an opioid antagonist. The use of sedation reversal agents can provide an important measure of the quality of sedation provided.

Problem

1. It was difficult to determine the rate of reversal use in the medical center
2. An assessment on the quality of moderate sedation currently provided was difficult in the absence of reliable data about adverse events

Aim/Goal

The goal of the project was to create a better system to accurately monitor the use of reversal agents, which in turn could then be used as a surrogate monitor for the quality of sedation provided

The Team

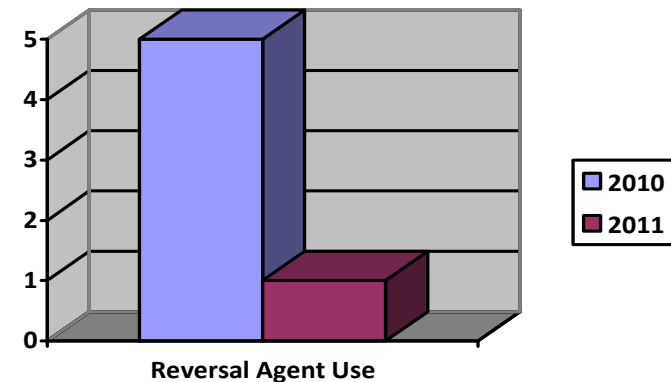
Sheila Barnett, MD, Anesthesia
Jason Laviolette, Health Care Quality
John Marshall, PharmD Pharmacy
May Adra, PharmD Pharmacy

The Interventions

- An updated procedural order form was created and approved through the Interventional Procedures Committee in late 2010. The form included:
 - Updated dosing recommendations for procedural sedation
 - Input from all areas that utilize procedural sedation
- The new form was then implemented in all areas in late 2010.
- Reversal agent (naloxone, flumazenil) removal from automated dispensing cabinets was then collected for a 5 month period in 2010 (Jan-May), and the same period (Jan-May) for 2011.
- Each case where a reversal agent was used was reviewed by the IPC committee to determine preventability

The Results/Progress to Date

The rate of reversal agent use was significantly decreased with the implementation of a new procedural sedation form



Lessons Learned

Although a measure such as the rate of reversal agent withdrawal from a machine seems simple – that does not mean it accurately reflects what is happening at the patients bedside. When using automated reports, like those created by pxyxis on drug counts, it is important to match the data to the patients records –and this can be complex and time consuming

Next Steps/What Should Happen Next

- A more efficient method of ascertaining reversal agent utilization vs withdrawal is currently being developed
- Reversal agent use will be reported to the IPC at least annually as a continuous quality improvement metric
- Individual cases will be assessed by the IPC to determine preventability and if future modifications to the procedural sedation form are warranted.



Beth Israel Deaconess
Medical Center



A teaching hospital of
Harvard Medical School

THE SILVERMAN INSTITUTE
For Health Care Quality and Safety

For More Information Contact

John Marshall; PharmD, Pharmacy
jmarshall@bidmc.harvard.edu