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North District Hospital

SEDATION TRAINING FOR NON-ANAESTHESIOLOGISTS
OUTLINE

- Why?
- Who?
- When?
- What?
- How?
- Some experience
- Way forward
POTENTIAL ADVERSE OUTCOMES IN PROCEDURAL SEDATION

- Oversedation & hypoxia
- Anaphylaxis
- CVS collapse
- Seizure
- Others
<table>
<thead>
<tr>
<th></th>
<th>Minimal sedation</th>
<th>Moderate sedation/analgesia</th>
<th>Deep sedation/analgesia</th>
<th>General anesthesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>Responds normally to verbal commands</td>
<td>Responds purposefully to verbal commands/or light touch</td>
<td>Responds to pain</td>
<td>No response</td>
</tr>
<tr>
<td>Airway</td>
<td>Maintained</td>
<td>Maintained</td>
<td>May require support</td>
<td>Requires support</td>
</tr>
<tr>
<td>CV support</td>
<td>Not needed</td>
<td>Not needed</td>
<td>May be needed</td>
<td>May be needed</td>
</tr>
</tbody>
</table>

Conscious: American Society of Anesthesiologists 2009

Unconscious:
**PROCEDURAL OUTCOMES UNDER MODERATE SEDATION ITT ANALYSIS**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Total</th>
<th>Capnography blinded arm</th>
<th>Capnography open arm</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonoscopy</td>
<td>n=234</td>
<td>n=117</td>
<td>n=117</td>
<td></td>
</tr>
<tr>
<td>Hypoxemia (SpO2 &lt;90%, 10s)</td>
<td>124 (53.0)</td>
<td>63 (53.8)</td>
<td>61 (52.1)</td>
<td>0.79a</td>
</tr>
<tr>
<td>Severe hypoxemia (SpO2 &lt;85%, RR&lt;8)</td>
<td>27 (11.5)</td>
<td>21 (17.9)</td>
<td>6 (5.1)</td>
<td>0.002a</td>
</tr>
<tr>
<td>UGI endoscopy</td>
<td>n=218</td>
<td>n=109</td>
<td>n=109</td>
<td></td>
</tr>
<tr>
<td>Hypoxemia (SpO2 &lt;90%, 10s)</td>
<td>113 (51.8)</td>
<td>59 (54.1)</td>
<td>54 (49.5)</td>
<td>0.50a</td>
</tr>
<tr>
<td>Severe hypoxemia (SpO2 &lt;85%, RR&lt;8)</td>
<td>39 (17.9)</td>
<td>18 (16.5)</td>
<td>21 (19.3)</td>
<td>0.60a</td>
</tr>
</tbody>
</table>

Sedation with standard Meperidine 50mg + midazolam 2mg

*Mehta PP AJG 2016*
PROCEDURAL SEDATION

- Should be provided by individuals who are trained and with experience
- High volume
- Many non-Anaesthesiologists are providers
- Providers of variable degree of training
- Considerable variation in sedation practices
VARIABILITY IN SEDATION PRACTICE FOR GI ENDOSCOPY EUROPE

- Safety considerations
- Monitoring
- Staff responsibilities
- Training requirement
- Informed consent
- After-care
- Awareness of international guidelines
SOME INTERNATIONAL GUIDELINES

- Am Society of Anesthesiologists
  - Practice Guideline for Non-Anesthesiologists
- College of Physicians & Surgeons in Canada
- Academy of Medical Royal Colleges
- European Board of Anaesthesiology
- Australia New Zealand College of Anaesthetists
- Intercollegiate Advisory Committee for Sedation in Dentistry UK
- Am College of Emergency Physicians
- Am Society of GI Endoscopy
- British Society of Gastroenterology
- European Society of Gastrointestinal Endoscopy
HKAM Guideline on Procedural Sedation
HKCA Guideline on Guidelines for Safe Sedation for diagnostic and therapeutic procedures
HA Recommendations on Procedural Sedation
HK Thoracic Society Guidelines on procedural and sedation safety in flexible bronchoscopy and pleuroscopy
HK Society of Paediatric Dentistry Guideline on Sedation for Dental Procedure in Paediatric Patients
Who Should Be Teaching?

- Anaesthesiologists?
- Intensive Care Specialists?
- Emergency Physicians?
- Individual Specialty College?
  - Physician, Surgeon, Paediatrician, Radiologist, etc
- Multispecialty Faculty
  - Collaborative effort
WHEN TO TEACH?

- Undergraduate
- Internship (e-learning module)
- Fellowship training (Resident year)
  - College of Surgeons HK: Core Competence Prog
  - HK College of Paediatricians
- Post-Fellowship
  - Hospitals, HA, CME/CPD programmes
  - when relevant
DIFFERENT OBJECTIVE OF SEDATION TRAINING

- To learn basic aspects of sedation process
- To learn skills to enhance safety aspects of sedation process
- To achieve competence in admin of sedation (Credentialing process)
WHAT TO TEACH?

❖ Systematic review
❖ Most essential competence in procedural sedation
  • Risk management & prevention of AE
  • Timely recognition
  • Appropriate management

Leroy PL 2010
WHAT TO TEACH?

- Pre-sedation assessment
- Patient selection
- Sedation drugs and techniques
- Monitoring requirement
- Post-sedation care
- Management of adverse events
- Recommended Institutional Policy & Guideline

Lemay A 2015
HOW TO TEACH?

- Adult learning modality important
- Knowledge with lectures (interactive) & problem-based discussion
- Clinical skills and decision making with simulation component
  - immersive, realism
  - meaningful
  - learn from others
HA SEDATION COURSES

- Enhancing Sedation Safety Course for Doctors
  - In collaboration with HKCA
- Safe Sedation Nursing Course
  - In collaboration with HKCA & IANS
- Enhancing Sedation Safety for Children having Diagnostic & Therapeutic Procedures
  - In collaboration with HKCA, HKCPaediatricians, COCs
- Individual Hospital’s own course
  - NTWC, KCC, etc
## Course Statistics 2010-2015

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Doctors</th>
<th>Nurses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhancing sedation safety course in Adults for Doctors &amp; Nurses</td>
<td>601</td>
<td>589</td>
<td>1190</td>
</tr>
<tr>
<td>Enhancing sedation safety in Children having diagnostic and therapeutic procedures</td>
<td>112</td>
<td>111</td>
<td>223</td>
</tr>
<tr>
<td>Total</td>
<td>713</td>
<td>680</td>
<td>1413</td>
</tr>
</tbody>
</table>
DISTRIBUTION BY RANKS

**Adult course**
- RN: 34%
- Resident: 30%
- NO/APN: 10%
- DOM/WM: 1%
- Academic: 5%
- EN: 2%
- Con: 4%
- SMO/AC: 14%

**Paed course**
- RN: 32%
- Resident: 36%
- NO/APN: 12%
- DOM/WM: 1%
- Academic: 2%
- Con: 1%
- SMO/AC: 11%
BY SPECIALTIES (ADULT COURSE)

Admin/CND/Sch: 2%
Endoscopy: 4%
Others: 2%
EM: 9%
Sur: 10%
Med: 22%
Ort: 6%
OVS/ENT: 5%
O&G: 3%
Onco: 1%
Paed: 10%
Den: 2%
Rad: 7%
OT: 10%
Ana: 1%
**EVALUATION**

(Scale of 1-5, score of 5 = mastery & strongly agree)

<table>
<thead>
<tr>
<th></th>
<th>Before workshop (median (range))</th>
<th>After workshop (median (range))</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate your level of competence on material covered in this course</td>
<td>2.71 (1.67-3.21)</td>
<td>3.66 (3.08-4.08)</td>
<td>0.001</td>
</tr>
<tr>
<td>This course will help me work more safely</td>
<td>-</td>
<td>4.38 (3.90-5.00)</td>
<td>-</td>
</tr>
<tr>
<td>I shall change my practice as a results of this workshop</td>
<td>-</td>
<td>4.00 (3.52-4.56)</td>
<td>-</td>
</tr>
</tbody>
</table>
CHALLENGES

- Lacking in suitable courses for different needs
- Inadequate qualified trainers
- Learners & trainers difficult to get time off
- No mechanism to ensure recommended standards
- Patients getting older, more complex comorbidity
WAY FORWARD

- Non-Anaesthesiologists will continue providing most sedation service
- Establish
  - an appropriate service model for procedural sedation
  - an effective mechanism for governance and monitoring
- Basic sedation safety training mandatory for all
- Advanced training for providers of iv sedation
- Adequate Anaesthesiologist’s support for difficult and paediatric cases
THANK YOU!