Worcestershire NHS
Acute Hospitals NHS Trust

Guideline for Conscious Sedation Practice in Adult Endoscopy

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

INTRODUCTION

Sedation is often required for gastrointestinal tract endoscopy as it can be unpleasant and/or painful.

The NCEPOD report, 'Scoping our practice' 2004, noted that the sedative dose was deemed 'inappropriate' in 14% of cases reviewed, and many patients needed reversal of sedation, with a significant proportion (43%) developing respiratory complications following the endoscopy procedure.

They advise the following:
1. Clear protocols for the administration of sedation should be available and implemented.
2. There should be national guidelines on the frequency and method of the recording of vital signs during the endoscopy.
3. Sedation and monitoring practices within endoscopy units should be audited and reviewed.

Conscious sedation has been defined as:

"A technique in which the use of a drug or drugs produces a state of depression of the central nervous system enabling treatment to be carried out, but during which verbal contact with the patient is maintained throughout the period of sedation. The drugs and techniques used to provide conscious sedation should carry a margin of safety wide enough to render loss of consciousness unlikely."
Royal College of Anaesthetists (2002)

This protocol is written for *adult* patients within the endoscopy setting only.

THIS GUIDELINE IS FOR USE BY THE FOLLOWING STAFF GROUPS :
Medical and non-medical staff working within Endoscopy Units

Lead Clinician(s)

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This is the most current document and is to be used until a revised version is available

Key amendments to this guideline

Date	Amendment	By:
2.10.12	Management of diabetic patients removed from guideline	I Rahman
18.02.13	Amendments to wording Addition of age with regards to Fentanyl / Pethidine	Endoscopy Directorate
07.07.15	Document extended for 3 months whilst being reviewed	Mr Lake
21.10.15	Document extended for 12 months as per TMC paper approved on 22nd July 2015	TMC
October 2016	Further extension as per TMC paper approved on 22nd July 2015	TMC
02/11/17	Document updated in line with Safe Sedation Practice for Healthcare Procedures October 2013 – to include NIBP monitoring	Endoscopy Directorate
04/12/2017	Sentence added in at the request of the Coroner	
20th May 2020	Document extended for 3 months whilst amendments are made and taken for approval at Directorate and Divisonal Governance meeting	Loraine Mahachi

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DETAILS OF GUIDELINE

Pre-procedure

Health care staff should complete a 'check list' to identify any risk factors which should include:

1) Abnormalities of major organ systems *
2) Snoring, stridor or sleep apnoea
3) Current medications, including allergies and recognition of potential drug interactions.
4) Prior adverse reaction to sedatives or anaesthesia
5) Time and type of last oral intake
6) Tobacco, alcohol and substance use
7) Raised BMI (>40)

* NCEPOD identified excessive sedation in patients with the following:

- upper GI bleeds
- severe liver disease
- obtunded consciousness (stroke or dementia)
- acute chest infection.
- sickle cell anaemia

Patients must be given instructions on activities before and after the procedure. Unfortunately there is no clear evidence on 'starvation' period for endoscopy.

Generally patients should fast for a minimum of 2 hours after consuming clear fluids and 6 hours after consuming light meals before the administration of sedation.

However in an emergency situation, the discretion should be that of the endoscopist performing the procedure, as there is insufficient evidence to suggest that recent food intake is an absolute contraindication to sedation.

Written informed consent must be taken prior to the procedure.

The British Society of Gastroenterology (BSG) recommend that this should be obtained when the patient has time to digest the information, ideally 24 hours prior to their procedure (BSG 1999). The responsibility for obtaining informed consent lies with the endoscopist who is to perform the procedure (BSG Guidelines for informed consent for endoscopic procedures 1999).

It may be appropriate for other members of the team to participate in the process of seeking consent. These team members should be competent and have received specialist training in advising patients about these procedures. The health professional carrying out the procedure is ultimately responsible and accountable in law (Worcestershire Acute Hospital NHS Trust – Consent to examination and treatment 2004).

During procedure

A) Monitoring

Access - A minimum 22G (blue venflon) should be inserted.

Resuscitation equipment and sedation reversing/antagonist drugs must be available in the endoscopy room and recovery area. Nursing staff must check that suction is functioning prior to procedure.

A minimum of two endoscopy assistants, at least one of whom a suitable trained nurse in resuscitation techniques, should monitor the patient's condition during the procedure.

All patients should have baseline observations recorded and the endoscopist should be made aware of any concerns.

There should be continuous pulse oximetry monitoring in all sedated patients. Automated non-invasive blood pressure monitoring should be undertaken pre, intra and post procedure for all patients.

Where conscious sedation is used and verbal communication is lost, the patient requires pulse oximetry, ECG and automated non-invasive blood pressure monitoring.

All sedated patients should have oxygen throughout the procedure.

B) Sedatives and analgesia

Drugs to be used in endoscopy:
1 Pharyngeal anaesthesia (non-sedating)
2) Benzodiazepine sedation
3) Opiate analgesia plus benzodiazepine sedation (IV sedo-analgesia)

Alcoholics and regular benzodiazepine users are difficult to sedate, in these circumstances the prior administration of an opioid can be useful

The first bolus of sedation and should be given by the endoscopist performing the procedure with any 'top-ups' then being given ideally by the endoscopist but can be given by another health professional trained in IV administration under the direct instruction of the endoscopist.

Lidocaine 10% (Xylocaine throat spray)-10 doses to the pharynx to suppress gag reflex. This should be avoid in patients with excessive secretions (patients with significant dysphagia or gastric outlet obstruction) and sedo-analgesia (midazolam, fentanyl etc.).

Midazolam – It is recommended that the maximum dose should be 5mg although the manufacturer recommended dose is 7.5mg. Elderly patients (>70yrs) should be given 1mg initially with a suitable pause to observe effect. Max bolus dose is 1mg in the elderly. Max dose in elderly 2mg. It should be drawn up in a 5ml labelled syringe from an ampoule which is 5mg in 5ml so that 1ml contains 1mg of midazolam. *Caution: Sedatives such as Benzodiazepines have no analgesic properties, and attempts to use them to control pain will result in significant overdose (BSG 2003.)*

Fentanyl- If this is being co-administered this should be given before the midazolam due to its synergistic effects and again a pause, particularly in the elderly (>70years), to observe effect. Max bolus dose is 25mcg in the elderly. Dose reduction of the midazolam may be required. Maximum dose of fentanyl should not exceed 100mcg. Max 25mcg in the elderly. This should be drawn from a 100mcg in 2 ml vial to the 2ml mark in a 2.5ml labelled syringe so that 0.5mls contains 25mcgs. *There are a minority of patients in whom the level of opiate may peak after the required 1 hour discharge time*

Pethidine- Precautions are similar to fentanyl and maximum dosage should not exceed 50mg. 25mg in the elderly (>70years). It is slightly longer acting and may be useful in prolonged procedures .This is drawn from a 50mg in 1 ml vial drawn up to the 1ml mark in a labelled 2.5ml syringe.

Entonox-This has good analgesic effect but little hypnotic benefit. It is best given by a mouthpiece via a demand valve or mask. Careful instructions are important to ensure compliance. It is not safe for use in patients who have compromised respiratory functions or pneumothorax. Recovery time is rapid with a 'washout time' of 5-10 min.

C) Reversal

Indications:
- Oxygen saturation <90% on pulse oximetry – *this is dangerous and requires immediate intervention*
- Deep sedation (unrousable)
- Slow recovery after procedure
- Significant co-morbidities
- Risk of aspiration
- Patients who are restless or violent following sedation - can improve by reversing the sedation.

****** Please note: The medical emergency team (2222) must be called for emergency apnoea and desaturation/airway compromise. ******

- Reverse midazolam with flumazenil:

1) Give flumazenil 200mcg over 15s
2) Then a further 100mcg IV at 60seconds interval if required
3) Maximum dose should be 1mg

The half-life of Flumazenil is approximately 50 minutes. The elimination time for Midazolam is approx. 4-5 hours, allowing the possibility of resedation after one hour.

- Reverse opiates with naloxone:

1) Give naloxone 200mcg IV as bolus

2) Further increments 100-200mcg IV can be given every 2 min according to response.

Note naloxone has a short half-life.

Please see appendix 1 for further details on drugs used in endoscopy.

Post procedure Guidance

Clinical monitoring must be continued into the recovery area.

Day case patients should be accompanied home by a responsible adult who should then stay with them for at least 12 hours if they live alone.

There are a minority of patients in whom the level of opiate may peak after the required 1 hour discharge time.

Clear written instructions should be given to this person as to what to do and whom to contact in event of any problems arising.

Prior to discharge patients should have returned to their baseline level of consciousness.

It is recommended that patients who have been sedated with an intravenous benzodiazepine do not drive a car, operate machinery, sign legal documents or drink alcohol for 24 hours.

MONITORING TOOL

Endoscopists will keep full records of all endoscopic procedures performed including complication. For audit purposes these will be recorded on the computerised system used at each endoscopy unit For example, Unisoft - GI Reporting Tool.

Audits should be carried out at regular intervals and these ought to be repeated to ensure practice is compliant with national guidelines. Annual audits are recommended. Endoscopy staff would be responsible for implementing the audits; however it is the responsibility of all staff to ensure audits are being performed and progress monitored.

Review of audit data to be discussed at regular meetings and acted upon as appropriate.

REFERENCES

American Society of Anaesthesiologists Task Force (1996) report on Sedation and Analgesia by Non-Anaesthesiologists, Practice Guidelines for Sedation and Analgesia by Non-Anaesthesiologists, Anaesthesiology V84, No 2, ps 459-471

Academy of Medical Royal Colleges (2013) Safe Sedation Practice for Healthcare Procedures, http://www.aomrc.org.uk

Bell, G.D. (1990) Review article: premedication and intravenous sedation for upper gastrointestinal endoscopy

British Medical Association (BMA) and the Royal Pharmaceutical Society (RPS), British National Formulary (2000) BMA and RPS, London.

British National formulary 2007

British Society of Gastroenterology (BSG 1999) Guidelines for Informed Consent for Endoscopic Procedures, BSG, London.

British Society of Gastroenterology (BSG 2003) Safety and Sedation during endoscopic procedures, BSG, London.

Cotton, P and Williams, C (1990) Practical Gastrointestinal Endoscopy. Third Edition, Blackwell Scientific Publications, London.

Department of Health (1990) Patient Consent to Examination or Treatment, HMSO London.

Jones, R (2000) Alexandra Hospital Anaesthetic Department (Department Home Page) http://194.227.204.62/Departments/Anaes/anaes.html

Smith, M.R. et al (1993) Small bolus injections of intravenous midazolam for upper gastrointestinal endoscopy: a study of 788 consecutive cases. British Journal Clinical Pharmacology, 36: 573-578.

The Association of Anaesthetists of Great Britain and Ireland (2000) Working Party, Recommendations for Standards of Monitoring during Anaesthesia and recovery, the Association of Anaesthetists of Great Britain and Ireland, London.

The Royal College of Surgeons of England (1993) Guidelines for sedation by non-anaesthetists, The Royal College of Surgeons of England, London.

Whitwam, J.G. (ed) (1994) Day-Case Anaesthesia and Sedation, Blackwell Scientific Publications, London.

Worcestershire Acute Hospitals NHS Trust (Guidelines for the management of diabetes for patients undergoing IV contrast, Endoscopy and anaesthesia)

NCEPOD (2004) Scoping Our Practice M Cullinane, A J G Gray
http://www.ncepod.org.uk/2004report/

APPENDIX 1

Lidocaine Spray side effects – confusion, respiratory depression and convulsions; hypotension and bradycardia (may lead to cardiac arrest) hypersensitivity reported.

Midazolam side-effects: increased appetite, jaundice, hypotension, cardiac arrest, heart rate changes, anaphylaxis, thrombosis, laryngospasm, bronchospasm, respiratory depression and respiratory arrest (particularly with high doses or on rapid injection) drowsiness, confusion, ataxia, amnesia, headache, euphoria, hallucinations, fatigue, dizziness, vertigo, involuntary movements, paradoxical excitement and aggression (especially in children and elderly) dysarthria, urinary retention, incontinence, changes in libido; blood disorders; muscle weakness; visual disturbances; salivation changes; skin reactions; on intravenous injection, pain, thrombophlebitis.

Opioid side effects**:** most common – nausea, vomiting, constipation and drowsiness. Large doses produce respiratory depression and hypotension.

Flumazenil side effects: nausea, vomiting and flushing; if awakening is too rapid, agitation, anxiety and fear, transient increase in blood pressure and heart rate in intensive care patients; very rarely convulsions (particularly in epileptics) (BNF 2007).
Cautions: Epileptics who have received prolonged benzodiazepine therapy are at risk of convulsions.
Contraindication: life threatening condition (for example: intracranial pressure, status epilepticus).

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