



The somnologists meeting
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DRUG-INDUCED SLEEP ENDOSCOPY

EUROPEAN POSITION PAPER ON DRUG-INDUCED SLEEP ENDOSCOPY REVISION 2017

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DISE EPP HISTORY

Bertinoro: June, 28-29, 2013



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European position paper on drug-induced sedation endoscopy (DISE)

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Abstract

Background Although drug-induced sedation endoscopy (DISE) represents the most widespread diagnostic tool for upper airway endoscopic evaluation of snoring and obstructive sleep apnea hypopnea syndrome (OSAHS), many controversies exist about how to perform the sedation, the

indications for DISE, and how to report DISE findings. The present position paper reports on a consensus as proposed by a group of European experts in the field of DISE after discussion during a recent dedicated meeting.

Methods The authors have evaluated all the available evidence reported in the literature and have compared experience

Top h cited research

European position paper on drug-induced sedation endoscopy (DISE)

Full-text Article · May 2014 · Sleep And Breathing



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Request feedback


117 Citations




Paris, IFOS 24th June 2017



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ORIGINAL ARTICLE

WILEY

European position paper on drug-induced sleep endoscopy: 2017 Update

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AGREEMENT POINTS



- ★ INDICATIONS / CONTRAINDICATIONS
- ★ REQUIRED PRELIMINARY EXAMINATIONS
- ★ PATIENT'S SELECTION
- ★ WHERE TO PERFORM DISE
- ★ TECHNICAL EQUIPMENT
- ★ STAFFING
- ★ PATIENT POSITION
- ★ DRUGS: SEDATIVE AGENTS
- ★ OBSERVATION WINDOW

TERMINOLOGY

FROM:

DRUG-INDUCED SEDATION ENDOSCOPY

TO

DRUG-INDUCED SLEEP ENDOSCOPY

INDICATIONS



1

- ✓ Non-CPAP treatment is considered:
 - ✓ UPPER AIRWAYS SURGERY
 - ✓ ORAL APPLIANCE THERAPY
 - ✓ POSITIONAL THERAPY *
 - ✓ COMBINED MODALITY THERAPY*

2

- ✓ CPAP problems or failure
- ✓ Surgery failure
- ✓ MAD failures*

CONTRAINDICATIONS

✓ ABSOLUTE CONTRAINDICATIONS:



- ✓ ASA 4
- ✓ PREGNANCY
- ✓ ALLERGY TO DISE SEDATIVE AGENTS

✓ RELATIVE CONTRAINDICATIONS:

- ✓ MORBID OBESITY



REQUIRED PRELIMINARY EXAMINATIONS & PATIENT'S SELECTION

✓ ESSENTIAL:

- ✓ Type 1, 2 or 3 sleep studies (according to AASM)
- ✓ Awake examination (clinical, UA endoscopic examination)
- ✓ Pre-sedation assessment:
 - ✓ Blood test, visit to anaesthetist

WHERE TO PERFORM DISE

IN ANY SAFE CLINICAL SETTING:

- ENDOSCOPIC EQUIPMENT
- ANAESTHETIC EQUIPMENT
 - BASIC MONITORING,
 - EMERGENCY KITS

OPERATING THEATRE or SIMILAR CLINICAL ROOM

TECHNICAL EQUIPMENT

ESSENTIAL:

- ANAESTHETIC EQUIPMENT
 - BASIC MONITORING (SatO2, ECG, BP)
 - EMERGENCY KITS
- Flexible endoscope



USEFUL:

- Pump, TCI
- Bispectral Index (BIS) or Cerebral State Index (CSI)
- Polygraphic real-time monitoring *



DESIDERABLE:

- Audio-Video recording media



OAT/CPAP:

- In case of OAT or CPAP failure DISE indications *



STAFFING

According to Adult Sedation Guidelines, NHS, 2010

- The CLINICIAN(S), performing endoscopy
- An INDIVIDUAL for pt's monitoring and response to medication (anaesthetist or trained person)
- A third person for mouth, pull up, head rotation etc.

• **Total: 3-4 persons**

LOCAL ANAESTHESIA, NASAL DECONGESTION. OTHER MEDICATIONS

NOT RECOMMENDED:

- Potentially interact with UA and breathing control
- Interfere with nasal resistance (LA, ect.)
- Change the sleep physiology (Atropine)

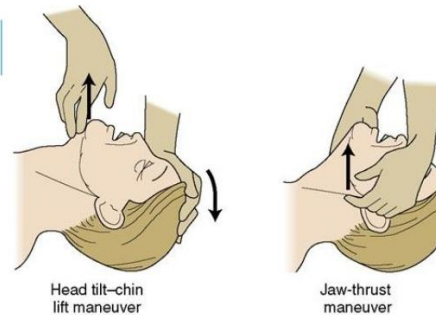
UA SUCTION:

- with caution if hypersalivation occurs



PATIENT POSITIONING: BASIC AND SPECIAL DIAGNOSTIC MANOUVRE

- SUPINE PRIMARY POSITION
- SUPINE AND LATERAL POSITION (POSA)
- JAW-THRUST/CHIN LIFT (no hyperprotusion)
- with OAT in situ
- simulation bite in maximal comfortable protrusion



DRUGS: SEDATIVE AGENTS



TABLE 1 Sedative agents main characteristics

Sedative agents	Advantages	Disadvantages
Propofol	<ul style="list-style-type: none">• Quick safe manageable• Less muscle relaxation• Easier control of titration	<ul style="list-style-type: none">• Technique dependent (MCI or TCI)
Midazolam	<ul style="list-style-type: none">• Longer and more stable examination window• Midazolam antidote available	<ul style="list-style-type: none">• More difficult to handle in case of overdosing• Longer hospital stay
Combined (P + M)	<ul style="list-style-type: none">• Quicker and more stable mimicking of natural sleep• Midazolam antidote available	<ul style="list-style-type: none">• Technique dependent (MCI or TCI)• Increases sneezing



DRUGS: SEDATIVE AGENTS

- PROPOFOL DISE: TCI recommended *
- MIDAZOLAM DISE: bolus technique
- DEXMEDETOMIDINE (DEX):
not recommended *
- REMIFENTANIL+PROPOFOL:
not recommended *

TABLE 2 Suggestions for drug dosage

Schedule	Drug dosage	
	Midazolam	Propofol
Propofol alone		<p>TCI (effect site concentration): Starting dose: 2.0-2.5 µg/mL If required, increase dose of 0.2-0.5 µg/mL every 2 min</p> <p>Manually controlled infusion: Delivering dose: 50-100 mL/h</p> <p>Bolus technique Proposal 1, starting dose: 30-50 mg, increasing rate of 10 mg every 2 min. Proposal 2, starting dose: 1 mg/kg, increasing rate of 20 mg every 2 min.</p>
Midazolam alone	<p>Bolus technique: Starting dose: 0.05 mg/kg Observe 2-5 min If required, increase dose of 0.015-0.03 mg/kg</p>	
Midazolam and propofol	<p>Midazolam single bolus before administration of propofol: Single starting dose: 0.05 mg/kg</p>	<p>Propofol TCI (effect site concentration): Starting dose: 1.5-3.0 µg/mL If required, increase dose of 0.2-0.5 µg/mL</p>

OBSERVATION WINDOW



- STABLE SEDATION LEVEL & CONSISTENT BREATHING PATTERN*
- AT LEAST TWO CYCLES/1 MINUTE
- STARTING AFTER THE FIRST CYCLE/CENTRAL APNEAS
- MEDIUM SEDATION LEVEL
 - (loss response to verbal stimulation: Ramsay sedation score 5)
- BIS 60-80

**COMPLETE AND STABLE SEQUENCE
OF SNORING, APNEA/HYPOPNEA AND BREATHING**

TARGET EVENTS DEFINITION

- **SNORING:** pharyngeal and/or laryngeal vibration without obstruction
- **APNOEA/HYPOPNOEA:** pharyngeal and/or laryngeal complete or partial obstruction
- **COLLAPSE PATTERNS:**
 - Antero-posterior or circumferential soft palate collapse
 - Pharyngeal lateral wall collapse
 - Tongue base collapse
 - Epiglottic collapse

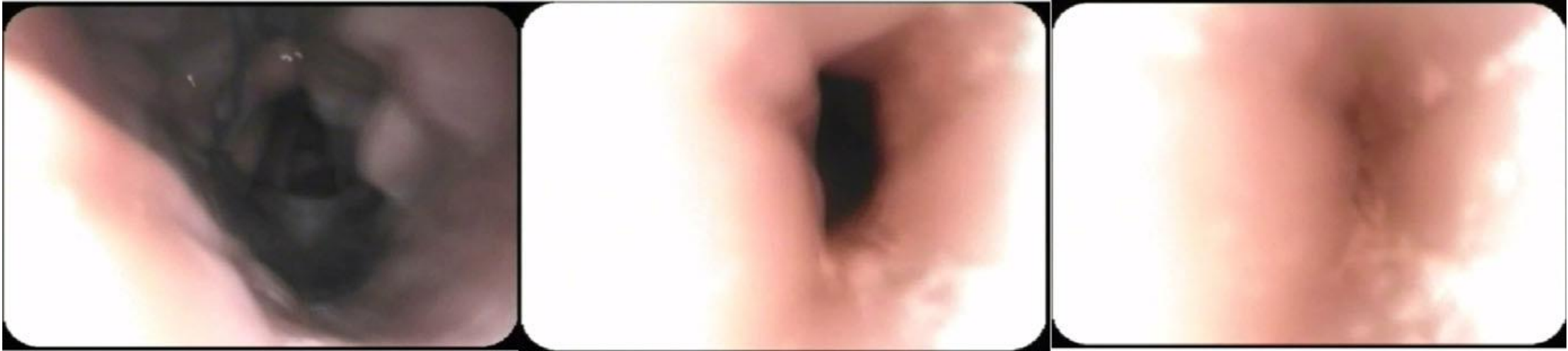
COLLAPSE PATTERNS

**ANTERO-POSTERIOR OR CIRCUMFERENTIAL
SOFT PALATE COLLAPSE**

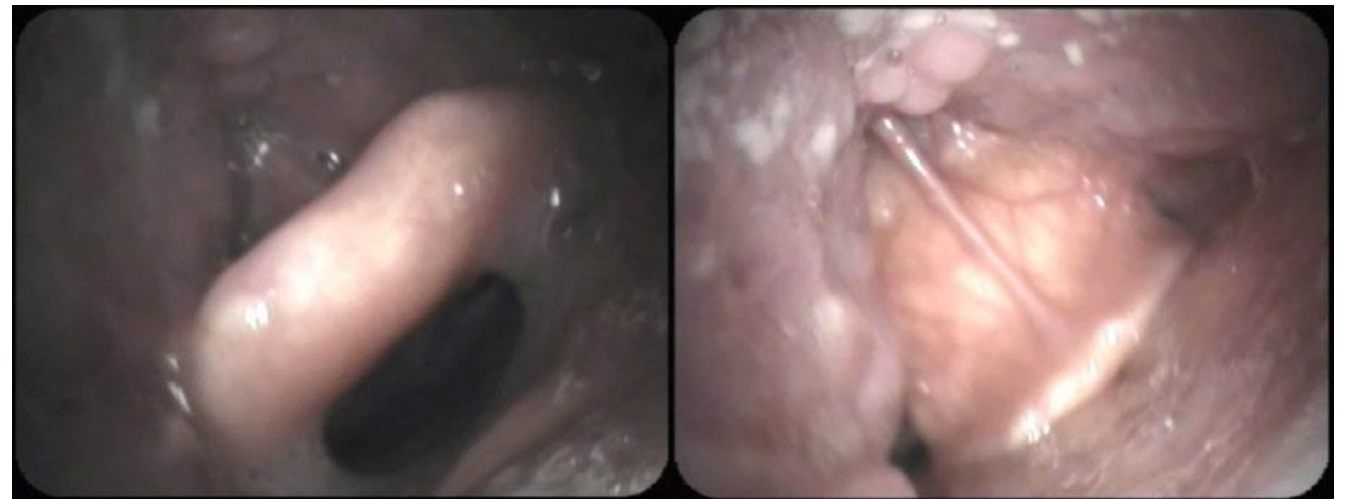


COLLAPSE PATTERNS

PHARYNGEAL LATERAL WALL COLLAPSE



PRIMARY EPIGLOTTIC COLLAPSE: TRAPDOOR PHENOMENON



COLLAPSE PATTERNS

TONGUE BASE COLLAPSE DUE TO LINGUAL TONSIL HYPERTROPHY



MUSCULAR TONGUE BASE COLLAPSE



SCORING AND CLASSIFICATION SYSTEM



NO AGREEMENT

IN SELECTING ONE OFFICIAL SCORING SYSTEM

WORKING GROUP CONSENSUS ON GENERAL FEATURES:

- **LEVEL and/or STRUCTURES**
- **DEGREE (SEVERITY)**
- **CONFIGURATION (PATTERN/DIRECTION) OF OBSTRUCTION**

SCORING AND CLASSIFICATION SYSTEM

Table 1 The VOTE classification

STRUCTURE	DEGREE OF OBSTRUCTION ^a	CONFIGURATION ^c		
		A-P	LATERAL	CONCENTRIC
Velum				
Oropharynx lateral walls ^b				
Tongue Base				
Epiglottis				

**VOTE
CLASSIFICATION:
COMMON STARTING POINT ***

RECOMMENDED REPORT FORMAT *

Drug-induced sleep endoscopy: standard report format example

Sedative agent(s) Applied:

Method of sedation: For example, TCI, manually controlled infusion

Effective site concentration:

Lower oxygen saturation:

Setting : BIS, CSI, online cardiorespiratory monitoring, bite simulator

V. Comment:

O. Comment

T. Comment

E. Comment:

Overall comments:

Manoeuvres:

Head rotation evidences

Mandibular advancement

Trans oral approach

Conclusions:



FINAL REMARKS

★ OSA prevalence increased by 14-55% in past 20ys

★ COMPLEX OSA PATHOPHYSIOLOGY

(ANATOMICAL – NOT ANATOMICAL FACTORS)

★ CUSTOMIZED TREATMENT

★ MULTIMODALITY THERAPY

★ DISE STANDARDIZATION IS OF PIVOTAL IMPORTANCE

★ DISE SCORING CLASSIFICATION SYSTEM IS MANDATORY



Thank
you!!

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ATELIER 10

**Sleep endoscopy : “How
should I do it”** ✓

RESPONSABLES : Dr Andrea De Vito (Italy),
Dr Olivier Gallet de Santerre (France)

PROGRAMME :

- Anatomie physiologique de l'oropharynx
- Technique de l'endoscopie du sommeil
- Interprétations des résultats
- Endoscopie du sommeil avant une chirurgie du ronflement