

# TEE ESSENTIALS

## Patient preparation for TEE: Safe sedation

TEE is not a painful procedure. The use of sedation is optional, not mandatory, and should be discussed with the patient. The key principle of safe sedation during TEE is **conscious sedation**—the operator should be able to maintain verbal contact with the patient throughout the procedure.

The prerequisites for safe sedation during TEE are the following:

### 1. Appropriate staffing

- Primary operator: responsible for the overall procedure. The primary operator must be trained to an appropriate standard in TEE and in the safe use of sedation, and should have expertise in Advanced Life Support (UK) or equivalent.
- Second operator: responsible for operating the echo machine and for acquiring and optimizing the images.
- Patient monitor: responsible for monitoring the patient throughout the procedure. The monitor should have appropriate resuscitation training (e.g., Immediate Life Support (UK) or equivalent).

### 2. Appropriate equipment

- ECG monitor (usually via the echo machine)
- Blood pressure monitor and SaO<sub>2</sub> monitor
- Oxygen and suction equipment
- Procedural couch with facility for head-down tilt
- Emergency alarm call, telephone, and full resuscitation facilities

### 3. The routine use of a safety checklist

(see our lesson on “Our checklist manifesto”)



## Local anesthesia

Lidocaine is used as a topical local anesthetic, to reduce throat discomfort and reduce the gag reflex.

## Conscious sedation

Benzodiazepines are most commonly used for conscious sedation (usually midazolam).

- Midazolam should be given in intravenous aliquots of no more than 1 mg at a time (0.5 mg in the elderly or those with significant comorbidities), allowing adequate time between aliquots to assess the effects.
- Commonly, a total dose of 2 mg of midazolam is required (1 mg in those aged >65 years). It is rare to require more than 5 mg.

A benzodiazepine antagonist (flumazenil) must be available to reverse the effects of midazolam if required.

Oxygen should be available to all patients receiving intravenous sedation. Seek urgent anesthetic help if SaO<sub>2</sub> drops <90% and there is no improvement with flumazenil, or if the patient loses verbal communication.

Post-procedure, patients must be observed and monitored in an appropriate recovery area until they have fully recovered from the effects of sedation.

### Further reading

Wheeler R, Steeds RP, Wharton G, et al. 2011. Recommendations for safe practice in sedation during transoesophageal echocardiography: a report from the education committee of the British Society of Echocardiography. [accessed 2016 February 3] [http://www.bsecho.org/media/55310/recommendations\\_for\\_safe\\_practice\\_in\\_toe.pdf](http://www.bsecho.org/media/55310/recommendations_for_safe_practice_in_toe.pdf).