

FOCUSED TRANS-OESOPHAGEAL ECHOCARDIOGRAPHY IN GENERAL CRITICAL CARE

Focused trans-oesophageal echocardiography (fTOE) describes an abbreviated trans-oesophageal echo (TOE) study with limited views that can allow the operator to identify the aetiology of shock in critically-ill patients with poor quality trans-thoracic echocardiography (TTE) images. It is not a substitute for a full diagnostic TOE study. FUSIC fTOE accreditation provides a pathway for intensive care clinicians to obtain training and accreditation in safely undertaking fTOE studies in critically-ill patients in the ICU and theatre environment.

These guidelines apply to the use of trans-oesophageal echocardiography (TOE) undertaken in wards 116 and 118 by appropriately accredited or supervised intensive care consultants and registrars. They are not applicable to TOE undertaken in cardiothoracic critical care (111/112) or to TOE undertaken by cardiologists or cardiothoracic anaesthetists in 116/118.

INDICATIONS

Inadequate transthoracic images, agreement from responsible ICU consultant that fTOE is required, absence of contra-indications and:

1. Shock of unclear aetiology
2. Suspected cardiac tamponade
3. Suspected major valvular pathology that cannot be adequately evaluated on a comprehensive TTE, which may be amenable to operative intervention or would influence the ability to wean from invasive ventilation

fTOE is also indicated as an adjunct to cannulation during initiation of peripheral VA ECMO

CONTRA-INDICATIONS

1. Major pharyngeal or oesophageal pathology including oesophageal varices
2. Recent upper GI surgery
3. Upper GI bleeding
4. Previous oesophagectomy
5. Upper GI perforation

Relative contra-indications also include severe cervical arthritis, symptomatic hiatus hernia, coagulopathy, and previous thoracic radiotherapy.

MAJOR RISKS

1. 1:1250 major bleeding or oesophageal perforation
2. 1:3000 death
3. 1:500 oropharyngeal mucosal injury
4. 1:1000 damage to teeth

In view of the risks associated with TOE, it should only be undertaken where there is a clear indication and careful risk:benefit analysis by the responsible ICU consultant is in favour of proceeding.

TRAINING REQUIREMENTS

fTOE should only be undertaken by ICU clinicians:

1. registered with the Intensive Care Society as accredited in FUSIC fTOE

2. registered with the Intensive Care Society as training in FUSIC fTOE, who have completed an accredited fTOE course and who are:
 - a. directly supervised by a fTOE supervisor (first 20 scans), or
 - b. indirectly supervised in line with FUSIC requirements (greater than 20 logbook scans)
3. who have completed another accreditation pathway (e.g. BSE TOE, EDEC) or who are training in this with appropriate supervision.

STANDARD OPERATING PROCEDURE

1. Where applicable, informed consent should be obtained from the patient
2. Request the Philips X7-2t TOE probe from the vascular ODP (in hours) or CEPD ODP (out of hours). This is kept in the endoscope cabinet opposite theatre 18.
3. Connect TOE probe to ICU Philips Sparq ultrasound machine
4. Double-check for oesophageal pathology before probe insertion
5. Neuromuscular paralysis, use of a bite block and use of laryngoscope for insertion are advised
6. A probe sheath should be used in line with infection control guidance
7. A fTOE study should be taken in keeping with FUSIC requirements and should aim to include the standard 8 views as per the fTOE minimum dataset: Me4Ch, Me 2Ch, ME LAX, Asc Ao LAX, ME Bicaval, ME RV inflow-outflow, TG mid SAX and Desc Ao SAX
8. Images should be saved.
9. TOE probe should be decontaminated in line with NHS Lothian policy on ultrasound decontamination and return to theatre corridor

fTOE REPORT

A standardised report should be completed, detailing whether or not there is:

1. LV dilatation or significant impairment
2. RV dilatation or significant impairment
3. Pericardial fluid
4. Low preload
5. Pleural fluid
6. Significant incompetence or flow restriction across the tricuspid, aortic and mitral valves

The results of training scans should not be undertaken into the patient record until reviewed by a supervisor.

REFERENCES

Intensive Care Society FUSIC TOE: <https://ics.ac.uk/product/ftoe.html>

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