

5. Anaesthesia

Preoperative investigations

The process of preoperative assessment is considered in the surgical section. This section considers the content of the preoperative assessment process.

Echocardiography was the most common cardiac investigation. Other cardiac investigations were not widely used.

All patients would have had a clinical examination and a 12 lead ECG. Anaesthetists were asked to indicate whether elective patients had received more sophisticated cardiac investigations. Emergency admission patients were excluded because it would have been unlikely that there would have been time to organise these sorts of investigations. For this analysis the figures do include patients who went on to have endovascular repair.

The standard basic clinical history and examination together with a standard 12 lead ECG will allow patients to be allocated into one of three risk groups; low, intermediate or high. According to published guidelines¹ extra cardiac investigations are only indicated for the intermediate group, in order to identify whether patients in this group need further medication or intervention before operation.

Patients may have had more than one preoperative investigation. The results for large and for intermediate sized vascular units are shown in Figures 1 and 2. Only three cardiac investigations were reported from remote units, all being transthoracic echocardiography. In 14% (67/477) of questionnaires no data was available as to whether any investigations had been performed or not.

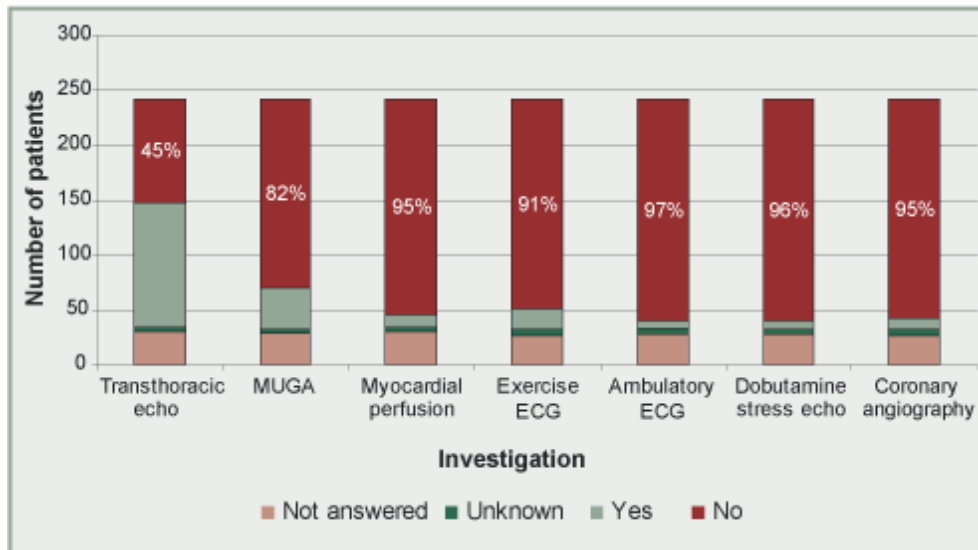


Figure 1. Investigations in large vascular units (elective open and endovascular procedure patients) $n=242$. Percentages refer to investigations that were not performed.

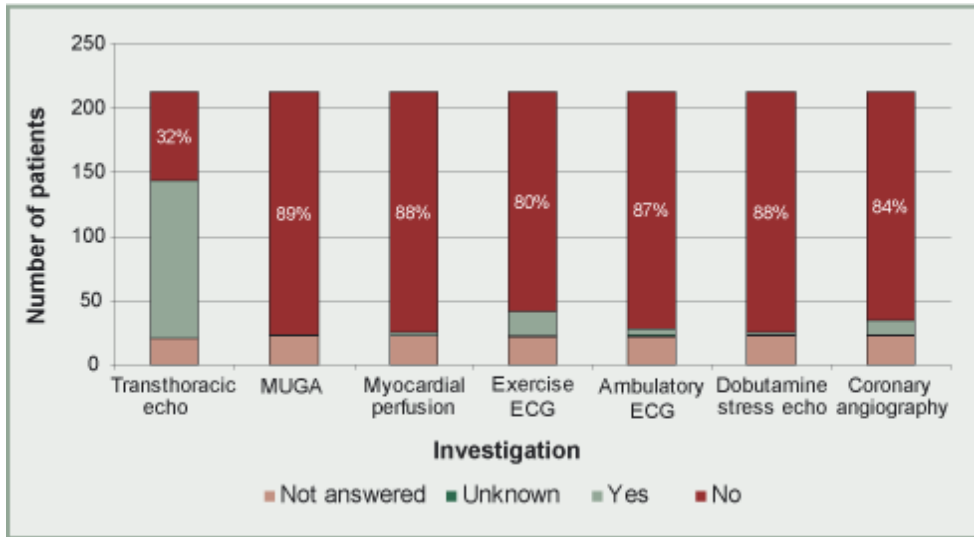


Figure 2. Investigations in intermediate vascular units (elective open and endovascular procedure patients) $n=213$. Percentages refer to investigations that were not performed.

Transthoracic echocardiography was the most common investigation being used in 60% (244/410) of cases overall. The NCEPOD advisors suggested that it is relatively easy to obtain a transthoracic echocardiography investigation for a vascular patient compared to the other investigations listed. The advisors were of the opinion that the test was helpful as an estimate of ventricular function and as a means of excluding unsuspected valvular disease, although there is little published evidence that the use of echocardiography affects outcome. It was thought that echocardiography was indicated in most aneurysm patients when it was not possible to judge ventricular function by simple clinical tests (e.g. the ability to climb two flights of stairs).

Other investigations were utilised to a small extent in the large units, but hardly at all in intermediate units. This may indicate greater difficulty in accessing sophisticated investigations at intermediate sized units. NCEPOD did not have enough information to calculate the cardiac risk for each individual patient so it was not possible to make an overall judgement as to whether the investigations were appropriate or not.

The anaesthetist was asked, if an investigation had been performed, whether or not they judged that the results of the investigations had affected the management of the patient. Table 5 details the numbers of tests, for all sizes of unit, which were regarded as affecting management.

Table 5. Investigations and effects on management of elective cases $n=477$														
	Transthoracic echo	%	MUGA	%	Myocardial perfusion	%	Ex. ECG	%	Amb. ECG	%	Dob. stress echo	%	Coronary angiography	%
Yes	70	31	19	53	6	43	12	36	1	11	2	25	10	59
No	153		17		8		21		8		6		7	
Sub-total	223		36		14		33		9		8		17	
Unknown	1		1		0		2		0		0		0	
Not answered	20		2		0		3		2		2		4	
Total	244		39		14		38		11		10		21	

NCEPOD cannot tell how great the changes in management may have been. There was quite a variation in the utility of the different investigations. Overall these figures would suggest that investigations are not being misused, but individual units should ensure that they have protocols agreed with cardiology colleagues concerning the indications for ordering these investigations. A mechanism for audit of the usefulness of the results, in order to ensure the most effective use of resources, should be implemented.