

5. Anaesthesia

The anaesthetist >> Monitoring and vasoactive drugs

It is reasonable to assume that all patients for aortic aneurysm repair surgery will be monitored with the standard mandatory monitors, together with direct arterial pressure and central venous pressure monitoring (subject to the exigencies of the emergency situation for ruptured aneurysms). There is less agreement about the use of pulmonary artery flotation catheters and cardiac output monitors.

Table 19 shows the number of patients undergoing open elective aneurysm repair in whom a pulmonary artery flotation catheter was inserted.

Table 19. Intraoperative use of pulmonary artery flotation catheter						
Pulmonary catheter	Elective	%	Emergency	%	Not answered	Total
Yes	8	2	2	1	1	11
No	370	98	217	99	52	639
Sub-total	378		219		53	650
Unknown	0		2		0	2
Not answered	56		43		1	100
Total	434		264		54	752

It would appear that at the time of this study very few anaesthetists thought that the use of pulmonary artery catheters was justified for either elective or emergency open aneurysm repair.

Table 20 shows the number of patients undergoing open aneurysm repair in whom it was reported that the cardiac output was measured.

Table 20. Intraoperative measurement of cardiac output						
Cardiac output monitoring	Elective	%	Emergency	%	Not answered	Total
Yes	30	8	14	6	3	47
No	347	92	204	94	50	601
Sub-total	377		218		53	648
Unknown	0		2		0	2
Not answered	57		44		1	102
Total	434		264		54	752

In 10 of the cases (two were emergencies) a pulmonary artery flotation catheter was inserted and presumably was used for measuring the cardiac output by the thermodilution technique. The use of other techniques in 37 patients must reflect the increasing availability of non-invasive methods such as oesophageal Doppler devices and rebreathing devices. Overall, cardiac output was monitored in 7% (47/648) of patients.

Table 21 shows the numbers of patients who received inotropic drugs, defined as “drugs given for inotropic effect e.g. epinephrine, dobutamine”.

Table 21. Use of inotropes						
Inotropes	Elective	%	Emergency	%	Not answered	Total
Yes	113	30	115	53	23	251
No	263	70	103	47	30	396
Sub-total	376		218		53	647
Unknown	1		2		0	3
Not answered	57		44		1	102
Total	434		264		54	752

Table 22 shows the numbers of patients who received vasoconstrictor drugs, defined as "...drugs ... given for vasoconstrictor effect e.g. metaraminol, phenylephrine, norepinephrine".

Table 22. Use of vasoconstrictors						
Vasoconstrictors	Elective	%	Emergency	%	Not answered	Total
Yes	258	69	142	66	34	434
No	117	31	74	34	18	209
Sub-total	375		216		52	643
Unknown	2		3		0	5
Not answered	57		45		2	104
Total	434		264		54	752

It is not surprising that vasoactive drugs were used frequently. Patients undergoing elective operation are likely to have received vasodilating anaesthetic techniques such as epidural anaesthesia, and emergency operation patients may have been hypotensive due to hypovolaemia or myocardial ischaemia. The logical use of vasoactive drugs requires knowledge of the effect of therapy on cardiac output and systemic vascular resistance, not just the effect on the blood pressure. It is of concern that whilst a total of 39% (251/647) of patients received inotropic drugs and 67% (434/643) of patients received vasoconstrictor drugs, the cardiac output was monitored in only 7% of patients. When cardiac output monitoring was not used, was the anaesthetist certain that the patient's condition was being optimised with minimal effects on myocardial ischaemia?