Cardiovascular risk and anaesthesia: what is an anaesthetist to think?

The textbook (Churchill-Davidson, 1978) that I used for the FFARCS diploma, now the FRCA, was unequivocal: 'The hypertensive patient represents an increased risk for anaesthesia and surgery.' The opening paragraph of the section went on to speak of cerebrovascular accidents, myocardial infarction, and all manner of mischief. As with so much in medicine, the intervening years have seen certainty replaced by uncertainty, although uncontrolled or poorly controlled hypertension is still one of the main medical reasons that operations are cancelled on the day of surgery.

This relaunch issue of the *British Journal of Hospital Medicine* contains three symposium articles visiting this difficult and perennial area of anaesthetic practice. When a patient undergoes cardiac surgery, anaesthesia can be tricky, but is given by subspecialists and the patient ends up with a better heart. Meanwhile, the general anaesthetist has to manage patients with cardiovascular disease undergoing surgery for their hip replacements and cystectomies, and their hearts will be no better in recovery than they were in the anaesthetic room. What can the jobbing anaesthetist do?

Cardiac disease and anaesthesia

I was one of 400 anaesthetists at a recent Royal College of Anaesthetists' meeting titled 'Cardiac disease and anaesthesia' organized by Professor Pierre Foëx, author of one of this issue's articles. The 2-day meeting covered the subject comprehensively, and the notes I made to prepare a presentation to my department comprised about 3500 words. So what stood out?

Blood pressure

We really still do not know whether preoperative hypertension is of itself a risk marker for postoperative events and we are not quite sure what measure of hypertension is important (Howell et al, 2004): does a single measurement taken on admission to hospital for surgery mean anything? One speaker suggested that, once a reliable blood pressure has been obtained, pressures above 180/110 mmHg should be the indicator for postponement, whereas another felt that 160/100 mmHg with electrocardiographic (ECG) evidence of left heart hypertrophy was a better indicator. The latest guidelines (Eagle et al, 2002) go with either 180 or 110 mmHg – less if there is co-morbidity – and suggest beta-blockade if urgent surgery is indicated. But there is no evidence of outcomes to support this.

Undoubtedly, however, we are going to see more and more patients taking antihypertensives. The attempt to define two populations – normotensive and hypertensive – was always flawed and has now been thwarted, and there is simply a linear relation between blood pressure and cardiovascular events. (Pickering (1968) wrote nearly 40 years ago about physicians 'yearn[ing] for a definition of 'hypertension'; they clutch hopefully at every straw and even try to persuade themselves that the curve relating arterial pressure to mortality is composed of two linear relationships which cross at 140/90.') Thus, if your blood pressure is high, you will be treated.

Even taking account of the plea to look at overall cardiovascular risk rather than just a blood pressure number, this will turn great swathes of the over-60-year-olds into 'hypertensive' patients (Westin and Heath, 2005). We saw plenty of algorithms and heard much discussion of guidelines and none of them mentioned age. The story of arteries naturally hardening with age, and that you are anyway just more likely to die as you get older, seems to be pushed aside in the enthusiasm to redefine what is meant by normal and add more and more layers to the hypertension prescription. One speaker did say that antihypertensive therapy probably had little effect on overall mortality in the 'very elderly', but I see no sign of patients reaching their 80th birthdays and being told to throw away their tablets.

In 1978, the previously perceived wisdom that antihypertensive medication should be stopped before surgery had been overturned. That is still substantially correct, but more than one speaker advised not giving angiotensin receptor drugs, either angiotensin-converting enzyme inhibitors or receptor antagonists, on the day of surgery. There have been cases of resistant intra- and postoperative hypotension, and there is no advantage to giving the drugs perioperatively. I suspect this is something that anaesthetists will have to organize themselves. The mantra for preoperative drugs known by everyone is 'stop anticoagulants, arrange insulin, continue cardiorespiratory medication, think about steroids, take or leave everything else'. Making exceptions within those categories is too liable to misunderstanding. And I must say that I have anaesthetized many patients on angiotensin-affecting drugs without incident.

Delaying surgery

In 1977, Tarhan and colleagues had told us that it was best not to have surgery within 6 months of a myocardial infarction. In the intervening years, this delay was shown to be over-pessimistic provided careful anaesthesia was given in tertiary centres, but the meeting provided no clear answer, and I will continue to delay routine surgery. The problem here is time and facilities. Anaesthetists need to know about these patients early, and they need to be able to get tests done if necessary.

There is no universal solution: some favour anaesthetic clinics; others, myself included, favour referral between surgeons and anaesthetists who habitually work together. However, all this fails if there can be no follow-through. For patients with coronary artery disease, we were told that for low-risk surgery or low-risk patients we can just get on with it; patients with symptoms need investigation whether or not they are due to have non-cardiac surgery; but that leaves the patients judged clinically at high risk, but

who have no symptoms. Good practice asks for dobutamine stress testing (Papaioannou and Heller, 2003), which led to much sucking in of breath in the audience, and the acknowledgement by the speaker that the test is not readily and rapidly available. Patients for major joint replacement don't move much, and the first we know of their critical ischaemia may be ST depression on the intraoperative ECG: I know; I've been there.

Cardiac failure

Another consequence of the success of modern medicine that anaesthetists will have increasingly to live with is patients saved from the quick death of myocardial infarction but condemned to slow deterioration of myocardial function. It is becoming less acceptable to turn down patients for anaesthesia, so we need to know how best to assess them and then to manage them.

We were given sensible guidelines for management of the various types of cardiac failure – described by one speaker as a condition for which it is easy to know what is current best treatment, but less easy to define. But the take-home message for me was the ever-increasing reliance on expensive technology to prolong the lives of patients with heart failure – which is what ultimately many of us are bound to die of, whether quickly or slowly. It cannot be sensible to implant three-lead coordinated pacemakers and implantable defibrillators, or to perform ventricular remodelling surgery, in everyone with heart failure. It just can't: but how do we say no?

And then there is beta-blockade. Before 1978, beta-blockers were held to be dangerous in combination with anaesthesia. By 1978, advice was to continue them, and it was not long before their use was suggested as a way to reduce postoperative myocardial complications. Another circle is completed: we now have to admit that we are not sure if beta-blockers are protective, except in patients undergoing coronary grafting – although a recent review was still supportive (Stevens and Fleisher, 2004). But even as beta-blockers slide back into the shadows, statins emerge as the new wonder protectors. Four of the speakers mentioned statins, two going so far as to say that patients are put at risk if statins are stopped perioperatively, a tricky problem for drugs that cannot be given parenterally.

All this is impression. Any attendee at a meeting goes with preconceived ideas, which almost certainly bias what he or she remembers. One person's jotted notes are not authoritative, but they are indicative. Read the articles in this issue, ignoring the indications if you wish, but not the authority. **BJHM**

KEY POINTS

- Patients with sustained blood pressures of 180/110 mmHg, less if there is co-morbidity, should probably be treated preoperatively.
- Drugs affecting the renin–angiotensin system should probably be stopped preoperatively.
- It is still not easy knowing or being able to do what is best when patients have coronary artery disease.
- Statins may be about to eclipse beta-blockers for perioperative cardiac protection.

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