Study identifies why child heart operations go wrong

Clare Dyer *legal correspondent, BMJ*

Human and organisational factors have a significant role in determining whether a surgical operation has a good or bad outcome, according to research outlined last week to the public inquiry into child heart surgery at Bristol.

Marc de Leval, professor of cardiothoracic surgery at Great Ormond Street children's hospital in London, previewed the results of a study which looked at all the arterial switch operations performed in the United Kingdom over an 18 month period. Of 230 operations, 165 were studied in detail. The research is to be published soon in the *Journal of Cardiothoracic Surgery*.

The switch, performed in the first month of life to correct transposition of the great arteries of the heart, is one of two paediatric heart operations looked into by the General Medical Council in its long running investigation into the Bristol case last year.

The GMC found two surgeons guilty of serious professional misconduct for continuing to operate after concerns were raised about mortality and morbidity. The former chief executive of the United Bristol Healthcare Trust was also found guilty for failing to intervene.

The public inquiry heard that the switch research was modelled on studies of human fac-

tors in "near misses" in aviation. Death after surgery was equated with a crash, and near misses with cases where the patient needed mechanical support after the operation or where there were serious complications such as lasting neurological problems or deep seated infection.

The study found a mortality of 6.5% and an 18.5% incidence of near misses. Funded by the British Heart Foundation, it looked at a range of factors including personnel availability, bed space in the intensive care unit, distractions and interruptions during the operation, equipment design and reliability, monitoring of displays or equipment, and preoperative briefing of the team. A researcher was present in the theatre for almost all the operations.

Professor de Leval said the distribution of the coronary arteries was a key factor in determining how risky an operation was. The intramural coronary artery, where one of the arteries was partly inside the wall of the aorta, carried the highest risk.

Institutional and organisational problems also played an important part in determining outcome, particularly in higher risk cases. Events such as problems with availability of beds, difficulties in coordination with the blood bank, inappropriate

The microscopic structures of living organisms are revealed in a collection of award-winning biomedical images at the Wellcome Trust's Two10 Gallery, London, opening next week. This picture of actin stress fibres (protein structures which give cells their characteristic shape) was taken by Kate Nobes and Alan Hall of the MRC Laboratory for Molecular Cell Biology, University College London.

delegation of tasks, equipment problems, incorrect readings of electrocardiograms, and positioning and tensioning errors by surgical assistants increased the risk of death or near miss.

But these events, including the distribution of the coronary arteries, could often be compensated for. "The study shows that a good compensation will provide a good outcome, even with difficult coronary arteries." Errors were inevitable, he said. "What we have to do is build systems which are error tolerant."

The study did not follow the patient beyond the point at which he or she was handed over to the intensive care unit, but further research is looking at this area.

• Sir Donald Irvine, president of the GMC, told the inquiry that the council had consulted extensively with NHS employers to make it as clear and explicit as possible that any default from the standards of good medical practice should automatically trigger a complaint to the GMC, if employers could not handle it themselves.

"Huge numbers" of chairmen and chief executives had been quite unaware of that fact. Sir Donald said the GMC had power to act only as a result of a complaint, but it did scan the press and there was nothing to stop it inquiring whether someone wanted to make a complaint. □

Israel wants to abolish private medicine in public hospitals

Judy Siegel-Itzkovich *Jerusalem*

Israeli doctors say they will "revolt" if the treasury pushes through the Knesset (parliament) a bill to abolish private medical services in public hospitals.

Such services, known by their Hebrew acronym Sharap, have been legally and widely used for up to 40 years in all of Jerusalem's voluntary hospitals (public hospitals that are free to patients but

not owned by the government) including the two hospitals that are part of Hadassah University-Shaare Zedek Hospital and Bikur Holim Hospital. The dispute is reminiscent of the row in the United Kingdom over pay beds in the 1970s when the then Labour government decided to abolish private beds in NHS hospitals, provoking anger among private surgeons and hostility from the BMA.

Under the Sharap arrangement, patients may call the hospital for a private appointment with a senior doctor in the afternoon or evening for consultation in an outpatient clinic or diagnostic institute. They pay the hospital a set fee that is

divided between the medical centre and the doctor.

Sharap also allows patients to choose which surgeon will operate on them. Hospital administrations insist they supervise Sharap to ensure that non-paying public patients whose stay in hospital is covered by their health fund are not penalised, and that private consultations and operations take place only after hours.

A recent study at an Israeli university found that most public patients in one hospital in Jerusalem said that their medical care was as good as that given to Sharap patients in the same wards. They did, however, maintain that doctors tended to

explain their treatment more and show greater personal interest in Sharap patients than in non-paying patients.

After the introduction of the national health insurance system in 1995, which required that hospitals be run on an economic basis, medical centres owned by the government and by the largest health fund, Clalit, gradually began to introduce Sharap in various forms, but without receiving approval from the health ministry.

Instead of a formal arrangement, patients requesting private medical services are asked to "contribute" to a hospital department research fund to get the surgeon of their choice. □