

Use of cement in partial hip replacement linked to risk of death

Relatively rare, but significant enough to warrant action; and concerns first raised in 2009

[What is the risk of death or severe harm due to bone cement implantation syndrome among patients undergoing hip hemiarthroplasty for fractured neck of femur? A patient safety surveillance study doi 10.1136/bmjopen-2014-004853]

The use of cement in partial hip replacement surgery may be linked to a risk of death - often occurring within minutes - finds research published in the online journal BMJ Open.

The risk is relatively rare. But the alarm was first sounded in 2009, and most of the cases that have come to light have occurred since that date, say the authors, who include the former chief medical officer for England.

This suggests that measures to reduce the risks are not being acted on widely enough, they say.

They base their findings on an analysis of cases submitted between 2005 and 2012 to the National Reporting and Learning System (NRLS) - a database of patient safety incidents associated with the delivery of healthcare across the NHS in England and Wales.

All the cases involved sudden and severe deterioration among patients undergoing partial hip replacement, known as hemiarthroplasty, for fractured neck of femur (broken hip), and associated with the use of cement to help hold the artificial hip joint in place.

This sudden deterioration is referred to as bone cement implantation syndrome or BCIS for short. In each of the cases in this study, it caused either death; cardiac arrest, where the heart stops beating; or periarrest - severe deterioration in the patient's condition.

Between 2005 and 2012, the NRLS received 62 reports of BCIS, equivalent to one incident for every 2900 hemiarthroplasties performed for fractured neck of femur, indicating that it is a rare occurrence.

In 2012, 22,000 people in the UK underwent partial hip replacement for a fractured neck of femur, although not all these would have involved the use of cement.

But in 41 of the cases reported to the NRLS the patient died, and in most (80%), this was on the operating table. A further 14 patients had a heart attack but were resuscitated; and seven sustained a periarrest from which they recovered.

In most cases (55 out of 62; 89%), these events occurred within minutes of the cement being inserted.

A further 39 cases of hip surgery associated with BCIS were also reported to the NRLS during this period, but were not included because it was not clear whether the procedures specifically related to partial hip replacement for fractured neck of femur.

In 2009, the now defunct National Patient Safety Agency raised the alarm about the use of cement and associated patient harm during hemiarthroplasty and issued guidance to the NHS on how to minimise the risks.

Fifty one of the 62 cases were reported to the NLRS after this date, possibly because of heightened awareness in the wake of the guidance, say the researchers.

But the fact that deaths are continuing to occur “clearly shows that the implementation of mitigation measures set out in the alert was suboptimal, or that their effectiveness is suboptimal, or both,” they write.

In an accompanying podcast, lead researcher Dr Paul Rutter emphasises that the risk of BCIS remains rare, but not so rare that orthopaedic surgeons don't need to know about it, or what steps they need to take to reduce it.