

# Rapid Response Report

NPSA/2009/RRR001

From reporting to learning

11 March 2009

## Mitigating surgical risk in patients undergoing hip arthroplasty for fractures of the proximal femur

Around 60,000 planned total hip replacements and 60,000 repairs of hip fractures are carried out annually in the UK. The mortality rate following partial hip replacement after fracture treatment is ten times higher than with a planned hip replacement. Patients undergoing surgery after fracture are older, generally more ill and are in need of an emergency operation. The mortality rate is significantly higher if surgery is delayed more than 48 hours.

The most common cause of sudden intra-operative death during arthroplasty is the occurrence of venous embolisation of fat and marrow contents. This phenomenon is exacerbated by poor patient preparation, dehydration and significant co-morbidities and is associated with instrumentation of the canal and finally cement insertion. At the time of arthroplasty, embolism can occur when cement is used but has also been reported with cementless implants. The National Hip Fracture Data Base (NHFD) has recently started data collection of hemiarthroplasty use.

The National Patient Safety Agency (NPSA) is aware of 26 patient deaths and 6 cases of severe harm where bone cement was used during hip surgery between October 2003 and October 2008. Most occurred during hemiarthroplasty carried out as an emergency. The voluntary nature of reporting means that conclusions cannot be drawn from these data on the relative safety of uncemented and cemented prostheses. The Medicines and Healthcare products Regulatory Agency (MHRA) also received reports of 19 further patient deaths where cement was used during hip surgery and 6 cases of severe harm, although the cause of the incidents is unclear.

There are clinical situations where the use of cement is indicated or where the use of cement will produce a better clinical outcome. In all situations the clinician needs to make a risk benefit assessment based on the actions below to mitigate the risk no matter what implant is chosen.

### For PRECAUTIONARY ACTION by clinical directors of surgery in the NHS and the independent sector. The deadline date for ACTION COMPLETE is 14 September 2009

Organisations should:

1. Report to the NPSA and MHRA every peri-operative harm or patient death for total hip replacement and hemiarthroplasty, stating use of cemented or uncemented prosthesis and share the results of local investigations with the NPSA.
2. Review local guidelines and audit current activity against best practice including submitting data to the NHFD, and reduce risks as follows:

**Patient assessment:**

- Identifying patients at risk (e.g. those with pre-existing cardiopulmonary dysfunction), assessing fitness for surgery and most appropriate technique

**Anaesthetic technique:**

- Maintain normovolemia throughout the procedure, particularly prior to cement insertion
- Maintain particular vigilance during instrumentation and fixation of the implant

**Surgical technique:**

- Thorough pressurised lavage of the femoral canal before broaching the canal and further instrumentation of the femur
- Consider a suction catheter to reduce the pressure in the intramedullary canal
- Introducing cement into the femur in retrograde fashion via a cement gun
- Communication with the anaesthetist regarding when cement is to be inserted

**The NPSA has informed:**

All NHS organisations, the independent sector, commissioners, regulators and relevant professional bodies.

**Further information**

Supporting information including detailed international guidance is available at [www.npsa.nhs.uk/rrr](http://www.npsa.nhs.uk/rrr) or contact Dr Kevin Cleary c/o [rrr@npsa.nhs.uk](mailto:rrr@npsa.nhs.uk)