patients experiencing postoperative AF have impaired autonomic nervous system activity before surgery. Also, Jideus and colleagues\(^8\) concluded that ‘the diminished circadian variation in autonomic nervous system before surgery and the indirect signs of a higher parasympathetic activity in patients developing postoperative AF compared with patients remaining in sinus rhythm, may indicate a propensity for AF.’ Thus, impairment in autonomic nervous system function, is thought to play a role in the development of postoperative AF.

Previous studies clearly showed a close relation between left ventricular diastolic dysfunction and impaired cardiac autonomic function.\(^3\)–\(^5\) Habek and colleagues showed that progression of diastolic dysfunction is associated with a significantly greater prevalence of reduced cardiac autonomic nervous system activity.\(^3\) Bonapace and colleagues\(^8\) found that early diastolic dysfunction, as measured by tissue Doppler imaging, is independently associated with impaired cardiac autonomic nervous system activity with normal systolic function.

As a consequence, we believe that the relation between impairment on cardiac autonomic nervous system function may have a significant role in the relation between DD and postoperative AF.

**Declaration of interest**

None declared.

**References**


---

**Does surgical technique add to the risk of bone cement implantation syndrome?**

D. Jain*, K. Jain and M. S. Dhillon

Chandigarh, India

*Corresponding author. E-mail: jaindivya77@rediffmail.com

Editor—We read the article ‘Bone cement implantation syndrome in cemented hemiarthroplasty for femoral neck fracture: incidence, risk factors, and effect on outcome’ with great interest.\(^1\) The authors have extensively studied the risk factors associated with bone cement implantation syndrome (BCIS).

However we feel that other than patient and anaesthesia related factors, evaluation of factors related to the surgical technique could have added to our knowledge.

1. Revision surgery vs Uninstrumented femoral canal: How many patients were being operated upon uninstrumented femoral canal? Owing to increased permeability to the embolic material, uninstrumented femoral canal has a greater risk for development of BCIS compared with a revision surgery.\(^2\)

2. Role of cement gun: It would have been interesting to investigate the association between use of cement gun and BCIS, as there have been conflicting reports. Cement gun use has been suggested as one of the techniques to decrease the incidence of BCIS. However its use results in increase in intramedullary pressures compared with finger packing.\(^3\)

3. Mixing of cement: We would like the authors to clarify if the technique of cement mixing was standardized. Mixing the cement in partial vacuum decreases the risk of BCIS compared with mixing under atmospheric pressure.\(^4\)

4. Lastly, we would like to know how many patients had osteoporotic bones, as this again is an important factor determining the risk of BCIS.

**Declaration of interest**

None declared.

**References**

1. Oslen F, Kotyra M, Houltz E, Ricksten SE. Bone cement implantation syndrome in cemented hemiarthroplasty for femoral
Bone cement implantation syndrome affecting operating room personnel

A. Karnwal*, M. Lippmann and C. Kakazu
Torrance, CA, USA

*Corresponding author. E-mail: karnwal@gmail.com

Editor—We read with great interest the recent article by Olsen¹ and colleagues concerning ‘Bone Cement Implantation Syndrome’ and its characteristics and applaud their research efforts. The authors stated that the ‘syndrome’ is comprised of hypoxia, hypotension and loss of consciousness around the time of implantation. Patients may manifest pulmonary hypertension and arrhythmias, which could even lead to cardiac arrest.

Their retrospective study does not mention the type of anaesthetic administered to these patients. Older patients with co-morbidities are more prone to suffer from the implantation syndrome. Young and healthier patients are able to fight off the ‘syndrome’ better.

We wish to add some thoughts and information to the ‘syndrome’ which many anaesthesia providers may not be aware of, or have forgotten.

Bone cement is hazardous to the patient, but also to the ‘team’ operating on the patient. The surgeon, scrub nurse, circulating nurse and anaesthesia provider are also in some danger because the cementing produces a pungent vapor into the operating room, that will be inhaled by all participants in the room if not properly ventilated. Should the ‘team’ operate often doing these type of cases, the cementing can lead to the following ill effects:

- Eyes, Nose, and Throat: Vapor in the air at a level of 125 ppm may cause teary eyes, sore throat, coughing, and irritation of your nose.
- Skin: direct contact with liquid can cause itching, burning, redness, swelling, and cracking of the skin. Repeated skin contact can cause dermatitis (skin rash). Allergic reaction can occur. Prolonged skin contact may cause tingling, numbness, and whitening of the fingers. Methyl methacrylate (MMA) easily penetrates most ordinary clothing and can also penetrate surgical gloves.
- Nervous system: overexposure affects the brain the way drinking alcohol does. Symptoms may include headache, drowsiness, nausea, weakness, fatigue, irritability, dizziness, and loss of appetite and may also cause sleeplessness.
- Reproductive system: some studies have suggested that MMA can cause birth defects when pregnant animals are exposed to extremely high levels. It is not known whether MMA can affect pregnancy in humans. Women who may be pregnant should avoid overexposure.²

There are no laboratory tests to accurately measure the amount of MMA in the body, or identify any damage that MMA exposure might cause. Periodic follow-up examinations are recommended. Most people can smell methyl methacrylate when the concentration in the air is well below 100 ppm. Containers should be tightly covered to prevent evaporation. Local exhaust ventilation systems ‘hoods’ are the most effective type of ventilation control. It is recommended to capture contaminated air at its source. A local exhaust system with laminar flow should be used. Vapors scavengers must be installed in operating rooms where MMA is used. Personal Protective Equipment such as gloves, goggles, or a face shield should be worn. Protective clothing should be made of MMA resistant material.²

Declaration of interest
None declared.

References

doi:10.1093/bja/aev280

---


doi:10.1093/bja/aev280

---