



## ARTICLE OF THE MONTH

### Incidence of Postoperative Cognitive Dysfunction after General or Spinal Anesthesia for Extracorporeal Shock Wave Lithotripsy

BS Silbert, LA Evered and DA Scott  
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In this installment of the SNACC Article of the Month, we delve into a paper which deals with a very intriguing clinical topic that has been the focus of much recent research. Silbert *et al.* have endeavored to shed light on the factor(s) that potentially contribute to the phenomenon known as “Postoperative Cognitive Dysfunction”, or POCD. POCD, especially in the elderly and following general anesthesia, has become a “hot button” topic as of late, as more and more researchers and clinicians have become aware that surgical and/or anesthetic factors probably play a role in the development of delirium and confusion even months after surgery. POCD used to be the realm primarily of cardiac surgery but now is recognized after even elective non-cardiac surgery in other vulnerable populations. Helping us to put this recent article in perspective is a member of our SNACC Education Committee, Professor Federico Bilotta. Dr. Bilotta is a long-standing member of SNACC and a long-time contributor to our field, whose varied interests and expertise are clearly shown by the breadth of his publications. Please join in the conversation by visiting us on the [SNACC LinkedIn Feed](#) and give us your insight!

~John F. Bebawy, MD

### Commentary

Reviewer: Federico Bilotta, MD, PhD

In this prospective trial 98 elderly patients (aged >55 years), scheduled to undergo extracorporeal shock wave lithotripsy (ESWL), were randomized to general (GA) or spinal anesthesia (SA) and studied -with a battery of 8 neuropsychological tests administered preoperatively and 7 days and 3 months postoperatively- to evaluate the occurrence and severity of postoperative cognitive dysfunction (POCD).

According sample size calculation and analysis based on an incidence of 12% POCD at 3 months follow up reported that 2 equal groups of 96 patients would be required to detect a significant difference with a power of 80% and 0.05 significance level. At 50% of recruitment, futility analysis was undertaken using a transformed Z-value to calculate conditional power.

A total of 87 patients completed the 7 days follow up (49 in GA and 38 in SA) and 85 patients completed the 3 months follow up. Mean procedure duration was 45 min and was similar for patients assigned to the 2 study groups. . Intention to treat demonstrated that incidence of POCD did not differed between the 2 study groups neither at 7 days nor at 3 months follow up: 4.1% (2/49) after GA and 13.2% (5/38) after SA at 7 days follow up and 6.8% (3/44) after GA and 19.6% (9/46) after SA at 3 months follow up. Per protocol analysis demonstrated

that GA is associated with a lower than SA incidence of POCD at 3 months follow up: 6.8% (3/44) VS. 22% (9/41),  $p=0.04$ .

In patients undergoing ESWL there is no difference in the incidence of POCD at 7 days and 3 months follow up should GA or SA is used. Secondary "per protocol" analysis demonstrate that GA as compared with SA is associated with a lower incidence of POCD at 3 months follow up.

Because of the uncoupling of surgical and anesthesia in the unique setting of ESWL this study provide interesting data in the evolving field of POCD. Among the major limitation the limited number of recruited patients (less than 50% of calculated sample size) and the need for statistical analysis of "per protocol" data should be considered with appropriate attention.