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Anaesthetic technique greatly reduces pain and minimizes complications after surgery

January 25, 2010 (Toronto, ON) – Sunnybrook is pioneering a new pain relief technique that uses ultrasound guidance to visualize the correct placement of local anaesthetic for shoulder surgery, resulting in greatly reduced pain and minimal respiratory complications for patients.

A special nerve block called an interscalene brachial plexus block uses a low volume of local anaesthetic delivered with ultrasound guidance. This technique precisely places the anaesthetic for shoulder surgery, avoiding interference with vital structures, and provides excellent pain relief with minimal respiratory complications in patients who are elderly, overweight or have pulmonary issues.

Nerve blocks relieve pain by interrupting how pain signals are sent to the brain. Using traditional techniques without ultrasound guidance, there was a high incidence of phrenic nerve paresis (a nerve that originates in the neck region of the spine and supplies movement to 50 per cent of the diaphragm, the main breathing muscle between lungs and abdomen).

“Previously, patients who were more elderly, overweight or had lung disease were not good candidates for shoulder surgery because there was a high incidence of paralysis of the breathing muscle on one side of the chest leading to risk of postoperative respiratory problems,” says Dr. Colin McCartney, an anesthesiologist at Sunnybrook’s Holland Orthopaedic and Arthritic Centre. “This technique is opening new doors for patients who have faced years of discomfort from shoulder pain.”

John Obeyeskere, a 71-year-old patient who has asthma, received a low-volume interscalene brachial plexus block in July 2009 for shoulder surgery at Sunnybrook’s Holland Centre. “The recovery was much faster than I expected and the pain wasn’t bad in the following days,” says John Obeyeskere. “Most importantly, it didn’t trigger an asthma attack, which I was really worried about before having the surgery.”

One of the key problems for patients who have medical problems or are overweight is that not only does the traditional method of delivering a nerve block pose a risk, but receiving general anaesthesia and narcotic pain medication also places them at risk for complications. “Until we demonstrated the ability to combine both effectiveness and avoidance of side effects with the new low volume nerve block technique, these patients had no good anaesthetic or pain relief options for shoulder surgery,” says Dr. McCartney.

The Sunnybrook study, published in the *British Journal of Anaesthesia* in 2008 (available online at <http://bj.oxfordjournals.org/cgi/content/abstract/aen229v1>) demonstrated such an overwhelmingly positive impact in terms of effectiveness for post-surgical pain relief and reduction in respiratory complications, that the technique is now being used to benefit patients throughout Canada and internationally.

“Next steps include exploring the effectiveness of low dose continuous nerve block infusion techniques that combine an ultrasound-guided technique with a low dose of local anaesthetic, providing both optimal pain relief and avoiding common side effects for several days after surgery,” says Dr. McCartney. “This means that patients would be able to enjoy good pain relief without the use of potent narcotic drugs”.