Unanticipated Costs Associated With Interscalene Nerve Catheters for Shoulder Surgery

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Background: Regional anesthesia has become a mainstay of analgesia following shoulder arthroscopic and reconstructive procedures. Local anesthetic can be injected around the brachial plexus by a single shot or continuously by an indwelling catheter. Although previous studies have compared efficacy and direct cost of single shot to catheters, few have evaluated unanticipated costs of on-going care or complications. Pulmonary complications can lead to unexpected admissions and emergency room visits. The purpose of the study was to identify unplanned hospital admissions or emergency room visits related to regional anesthesia after shoulder surgery and determine the additional associated costs.
Methods: A series of 1888 shoulder surgeries were identified in 1856 patients at a single large academic health system with an interscalene nerve catheter program. Interscalene nerve catheters were given to 1728 patients, and 160 patients had a single shot block (SSB). A quality control nurse contacted all patients one, two, seven and fourteen days following surgery. All emergency room visits or readmissions were recorded, and the associated billing charges were reviewed for the inpatient and any outpatient visits immediately preceding or immediately following the readmission. The regional average Medicare fee schedule was used to determine a cost for these episodes.
Results: Of the 1728 receiving an interscalene nerve catheter, ten patients were readmitted following open or arthroscopic surgery or presented to the emergency department in the immediate post operative period for pulmonary compromise. No patient in the single shot group had an emergency room visit or readmission. The average age of the ten patients with readmission was 60 years (7 females, 3 males). The majority were diagnosed with hypoxemia on admission (R09.02). Length of stay during readmission ranged from 0 to 4 days with one patient requiring admission to the ICU. The average cost of admission to the hospital or visit to the emergency room was $6,849 (range, $1,988 to $19,483). These costs were primarily related to chest X-Rays and EKG (9/10), chest CT with contrast (3/10), and head CT (2/10).
Conclusion: Our results show that significant, unanticipated pulmonary complications occured after interscalene nerve catheters that were not seen in single shot nerve blocks. The unanticipated costs associated with interscalene nerve catheters can be substantial and may be overlooked if only considering direct costs, such as medication charges, medical supplies, and physician fees.