Introduction: Persistent Post Thoracotomy Pain (PPTP) is a recognized complication following thoracic surgery, with an incidence between 44%-67% (1). Its etiology is considered to be multifactorial, with both surgical and patient factors involved (2). It is uncertain whether the pathophysiological process involved is predominantly inflammatory, neuropathic, or mixed (2). The burden of PPTP after Video Assisted Thoracoscopic Surgery (VATS) is considered to be less, although previous studies have shown conflicting results (3). Since the use of Epidural Analgesia (EA) is less with VATS, it is unclear if this influences the chances of PPTP (4). Our primary objectives were: 1) assessing the incidence of PPTP at 6 months after surgery, as compared to Open Thoracic Surgery (OTS) and VATS; and 2) identifying the type of pain if present (neuropathic versus non-neuropathic). The secondary objectives were to: 1) analyze the effect of EA on PPTP between the 2 groups; and 2) analyze other predictive factors of PPTP development.

Methods: Approval from REB was obtained for a mixed cohort (retrospective and prospective) study of thoracic surgery patients aged 18 or greater, performed at our center. Patients were contacted by a mailed questionnaire regarding the presence or absence of pain, its type and other pertinent factors. Non-responders were reminded by a phone call. Demographical, surgical, and postoperative analgesia details were collected from health records, acute pain database, and the thoracic surgery database. The patients were divided into 2 groups (OTS or VATS). Sample size of 90/group, was calculated using the primary outcome of difference in proportions; P1: 25%, P2: 45%, (Alpha: 0.05 and Power: 80%). The data was analyzed using a multivariable logistic regression analysis, with adjusted odds ratio for primary and secondary outcomes.
Results: Out of 353 patients initially approached, 130 patients responded; 5 patients were excluded due to selection criteria, and 18 responses could not be appropriately analyzed. Final analysis involved a total of 106 patients. A logistic regression model, with surgeons treated as clusters, indicated a significantly lower incidence of PPTP in the VATS group; adjusted OR: 0.33(0.13, 0.86). In the reduced model with important predictors included, diagnosis of cancer, and history of previous chronic pain were observed to be significantly predictive of PPTP development (table 1).

Conclusion: Our study indicates that persistent pain at 6 months has an incidence of 35% with VATS, compared to 54% with OTS. The persistent pain has a higher chance of being neuropathic with OTS, compared to VATS. The results support the finding that a diagnosis of cancer, and history of previous pain are highly predictive; however, the actual procedure, gender, and the use of epidural do not affect the development of PPTP. A prospective randomized study of appropriate sample size is necessary to confirm the above findings.

References:

3) Anesthesiology. 2006; 104(3): 594—600.