Published in final edited form as:

Anesthesiology. 2018 January ; 128(1): 225. doi:10.1097/ALN.0000000000001944.

ALN-D-17-00721 Reply

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Dear Editor

We appreciate the Montes et al's interest in our paper. In their 2015 *Anesthesiology* paper, the authors analyzed data from 2,929 patients who were candidates for inguinal hernia repair (men), hysterectomy (women), or thoracotomy (men) under general, regional or local anesthesia with sedation; 402 underwent thoracotomy (1). These were men only. Approximately 4.4 months after surgery, 37.6% of the thoracotomy patients had chronic postsurgical pain. We think the size of the study — nearly 3,000 patients enrolled — is quite remarkable.

To summarize the conclusions from Montes et al, they created a multivariate model that included all three types of surgeries where the outcome of interest was the presence of the chronic postsurgical pain at 4 months after surgery. According to their model, the following variables were associated with the chronic postsurgical pain at 4 months after surgery: 1) surgical procedure, 2) patient's age, 3) physical, and 4) mental health (short form health survey-12), 5) pre-operative pain in the surgical field, and 6) pre-operative pain in another area.

In our study, we enrolled only thoracic surgery patients (both thoracotomy and video-assisted thoracoscopic surgery) without any restriction on sex. In addition, following the recommendation of the IMMPACT group (2), we excluded those patients with pre-existing chronic pain problems in the chest area. Pre-operative pain in the surgical area and other areas may be different for thoracotomy versus hernia and hysterectomy patients. Thoracotomy patients generally do not have pre-operative pain in the chest. In our study, pre-operative pain at rest was univariately associated with the presence of pain at 6 months after thoracic surgery. However, in the presence of acute pain in the multivariate model, this affect was not significant. We measured pre-operative physical function and pre-operative mental health with multiple assessments (3). It is likely that those patients that have pre-operative pain related to their surgical procedure have other psychosocial risk factors before and after surgery that limit comparing studies. There may be unknown risk factors for

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The authors declare no competing interests.

chronic pain for hernia and hysterectomy patients that are not present in thoracic surgery patients of mixed sex. In summary, our study and the study of Montes et al are quite different and we cannot make direct comparisons between the factors in their final multivariate model versus our model. Differences between Althaus et al and our study are even greater, since only two patients had thoracic surgery in their study.

We recognized our limitations as noted by Montes et al. We also noted consistencies with other similar studies (4, 5). When determining risk factors of post-surgical chronic pain from multiple surgeries, mixing different types of surgeries has quite a number of limitations including sex, pre-operative symptoms, chronic pain in other areas, and psychosocial risk factors. We agree with Montes et al's conclusion that larger comprehensive, prospective observational studies to confirm and to understand the mechanisms leading to chronic pain after thoracic surgery are needed.

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