The American Journal of Surgery 217 (2019) 525–526

Contents lists available at ScienceDirect

The American Journal of Surgery

journal homepage: www.americanjournalofsurgery.com

Comparison of cost and outcomes in patients receiving thoracic epidural versus liposomal Bupivacaine for video-assisted thoracoscopic pulmonary resection☆

DR. CHARLES E. LUCAS (Detroit, Michigan): The authors have presented a video assisted thorascopic pulmonary resection that they're utilizing for pain control a thoracic epidural versus an intraoperative intercostal block. They used historical controls, which is always a problem, but I believe that they're looking at the two groups in a very detailed manner resulted in them having 95 patients in each group that are similar. They demonstrated that the intercostal block utilizing their technique leads to lower pain scores in total. Decreased opioid use and lower cost, even though length of stay was lower, it was not statistically lower. But when the patients went home, there was a higher incidence that the patients were going to go home rather than to some extended care facility.

I have another couple of questions. One has to do with cost. When the surgeons administered the intercostal nerve blocks, were they using an additional code on their billing or was it all part of the same code? When the anesthesiologists did their thoracic epidural, I presume this added to their anesthetic cost, and do we have any estimate what the added cost would be for the addition of a thoracic epidural in comparison to general anesthesia? Even though we don't have their data, there has to be some publicly available data.

I wonder if that data is significant for the anesthesiologist. If they get a lot more money if any of them are on hospital committees, they will probably resist your efforts to get away with thoracic epidurals in favor of intercostal nerve block. I was curious what the cost is for the intercostal nerve block. Can't we just take the long lasting anesthetic and mix it in the OR and give it at the time of operation without there being an additional pharmaceutical cost?

You mention in the manuscript that there's a learning experience. Could you tell us about what that learning experience might be. And then you mentioned on the manuscript that the patients that did not have better relief on days two and days three, they are not statistically significant. As you know, there are some commercially available intercostal sets which have a motor attached to it that can be brought out percutaneously and then used as needed in the postoperative period. Those same sets can be modified so that you have the catheter brought out in a subcutaneous position so that you can add medicines to it intermittently. And have you looked at that? And do you think they might be any better with that?

Does this technique, which I like very much, been utilized by your general surgeons? I find that when you're doing a Chevron incision with bilateral cuts in the subcostal area, the morning after surgery if you do a long lasting intercostal block, you can more easily get the patient up and walking and getting them to cough and deep breathe. So have your surgeons done any of this on their own, and are any of your chest surgeons opening the belly once and a while and utilizing this technique in the abdomen.

DR. MEDINA: In regards to your first question for the coding for the separate procedure for the administration of EXPAREL, I'm not sure if there's a separate coding that was done to bill for the actual procedure itself. When I approached our anesthesia department regarding the costs that go into maintaining an epidural, including its infusion rates as well as the anesthesiologist's fees, they were unable to give me a cost breakdown of what they actually charge the patient or the hospital. But that's something that definitely we're looking into in further talks with the anesthesia department. The cost of EXPAREL itself is about $285 to $315 per 20 cc vial in comparison to about one to $3 for a Bupivacaine vial from what our pharmacy had told us is costing the hospital.

In terms of the learning experience and learning curve that the administrating surgeons would have to overcome, when we inject the EXPAREL intrathoracically between the intercostal nerve spaces, we obviously have to be careful not to hit any of the vascular bundles around the ribs, but we have to administer it in a location where it does hit the nerves. So that is something to consider.

And you brought up, I believe, is it the ON-Q external catheter that can be left in patients that continuously infuse local anesthetic into the surgical site? Prior to our introduction of EXPAREL into the VATS procedure, that pain pump, if you will, was tried in the past and some of the limitations that are associated with the external catheter, of course, a foreign body that's within the patient that requires removal after surgery, as well, the inherent risks of wound infection and surgical site infections as well.

And then your last question regarding other surgeons who may use this, in the literature, orthopedic surgeons as well as colorectal surgeons have been using EXPAREL with good results. From our hospital standpoint, I believe some of the orthopedic surgeons have been using it, but our barrier has been the costs that we had to overcome.

DR. JAMES G. TYBURSKI (Grosse Ile, Michigan): Great paper using a really under utilized pain control of the intercostal nerve block now combined with the long-acting local that lasts 72 hours. I was curious, though, you said the adverse events were the same in both groups. I believe that's what you did. You said that epidurals and intercostals, right? Well, intercostals even better when you get

☆ (Presentation given by Melissa Medina, M.D.).

https://doi.org/10.1016/j.amjsurg.2018.12.039
0002-9610/

a chest tube in, because one of the major problems with intercostal nerve block is the pneumothorax. So having said that, can you give me an idea of what the adverse events were in both groups that they ended up being equal?

DR. MEDINA: The adverse events that we looked at were death. We looked at re-admission to the hospital and surgical site infections from off the top of my head that I can remember.