**WSA Discussion for 2021-1821**

**Prospective Implementation of Standardized Post-Hepatectomy Care Pathways to Reduce Opioid Prescription Volumes after Inpatient Surgery**

**DR AMANDA ARRINGTON** (Houston, TX): Dr Tzeng and colleagues at MD Anderson implemented risk-stratified post-hepatectomy opioid pathways in 2019. The opioid epidemic is widespread, and efforts on surgeons’ parts to decrease discharge narcotic prescriptions safely are essential.

You mention the 5-time multiplier in your manuscript and presentation. Is this now a validated tool to determine the number of pills to prescribe at the time of discharge? Does this take into account the amount of IV narcotic (tramadol, Robaxin) if any during the last 24 hours? Secondly, has a reduction in narcotic administration led to more patient calls to the clinic for pain reasons? If so, have you seen a decrease in patient satisfaction indicators? We also employ a multimodal pathway for our surgical oncology patients at our own institution. As you know, some of the multimodals are withheld or dose-reduced in the setting of renal impairment or liver resection, particularly Celebrex, and there are other side-effects of note with gabapentin. How much has the multimodal altered being able to provide standard doses? Only 59% of your post-implementation patients received the 5-times (5x) multiplier dose. I would have thought this would be much higher, so what was the difference in that 41%? Was it more of a resident/fellow education matter, were these patients different, or did they just require more medication in this setting?

**DR CHING-WEI TZENG** (Houston, TX): It is not 100% compliant, because it is not a hard stop in our electronic health record during the discharge process to use the 5x-multiplier, but perhaps we could consider that in the future. There are some noncompliance issues where sometimes it is forgotten, or providers decide to estimate a different multiplier. That has happened before, when even patients with zero opioid needs (in the last 24 hours) are still given some prescription opioids, so opioids occasionally sneak through this final discharge calculation. But it is a dramatic difference from 10% 5x-multiplier use pre-pathway up to 60% with the pathways.

The 5x-multiplier is something we created in 2017, because the CDC at that time had recommended giving a maximum 5-7-day prescription at discharge. But that is a very nebulous concept, because who defines how much a “daily” dose is? Also, the Dartmouth group had discussed looking at the last 24 hours and predicting how much you would use post-discharge. So based on those data, we chose the number 5 because it is very easy to multiply, and you do not need a calculator while writing discharge orders. It includes IV count, so if you give a small bolus dose in the patient’s last 24 hours, that does get counted, but that is rare. The goal is to have the patient off IV medication in that last 24 hours anyway.

Did it worsen patient satisfaction? It did not change the overall refill rate, which is in the 10-15% range. You can imagine this is an individual decision for providers. What do you think is an appropriate number of refills? You probably cannot drive it down to a zero-refill rate, no matter how high you go with opioids, nor would you want to have a 50% refill rate. That would be much too high. The refill rate has not changed over time as we implemented more 5x multiplier use, which validates a separate study we published. Also, not only did the 5x multiplier lead to fewer refills vs those who received super-5x or above 5x, but the refill size was smaller. I call it the “soda fountain effect.” If you give someone a 32-oz cup, they will get a 32-oz refill. If you give someone an 8-oz cup, all they get is a small refill. It trains the provider who answers the phone to give less: “Oh, you only got 5? I’ll give you 5 more.” If the patient received 30 pills originally, they are more likely to refill 30. I think that has helped our overall 30-day volumes distributed. In terms of patient satisfaction, we have that 24-to-72-hour (next business day) phone call to capture issues, where we made a mistake in some way. And we did look at people who received zero opioids, and only 7% of those patients end up receiving an opioid prescription within 30 days, so 1 out of 14 is very low. A total of 13 out of 14 remain without opioids.

**DR CHARLES SCOGGINS** (Louisville, KY): We all are trying to prescribe fewer opioids, but your group has made this a science, and we are still learning from you. How confident are you that patients are not being discharged from MD Anderson and returning to Austin or wherever and getting their family practice doctor to prescribe them some Norco? We find that to be very common in Kentucky. We have a method for capturing that: our state requires us to register all narcotic scripts into a computer program, and we are required to check it before writing a new one.

**DR CHING-WEI TZENG** (Houston, TX): That is a good question. I was inspired to do this because my first faculty position was at the University of Kentucky, and as you know, we had a lot of patients from Appalachia and had access to opioids outside of the hospital. I am relatively confident that they are not getting refills from their primary care physicians, because most of our patients come to us for everything, including blood pressure pill refills, in the postoperative period. I would think they would come to us for opioids, and I think most primary care doctors are going to defer any refills in the postoperative period to the surgeon. But in Texas, we also have an electronic prescription monitoring website to check opioid dissemination.

**DR RICHARD THIRLBY** (Seattle, WA): I have a question regarding your incorporation of the multimodal non-narcotic pain protocol with routine use of Tylenol, NSAIDs, and gabapentin. I could not tell from your presentation whether you used scheduled or pro re nata administration of these medications. I think it is very important to emphasize that these postoperative and discharge medications should be scheduled: scheduled NSAIDs, scheduled Tylenol, scheduled gabapentin, both in the hospital postoperatively and at home after discharge.

**DR CHING-WEI TZENG** (Houston, TX): You are correct. The non-opioid package is scheduled on the day of operation in the post-anesthesia care unit. For convenience, we sometimes administer IV acetaminophen, which I know is a controversial issue because it is expensive, even for 1 or 2 doses. Methocarbamol (Robaxin) is administered via IV for the first day as well. All liver patients receive acetaminophen. They may not receive it on the first day when they undergo a 60% or more resection, but we usually start it by postoperative day 2 when their bilirubin has peaked. All minor hepatectomy patients would receive maximum dose from the operating room onward. About 75% of patients will receive celecoxib (Celebrex). Some small percentage of patients may not if they have chronic kidney disease at baseline. But we use a very small dose: 100 mg twice per day. For the muscle relaxant methocarbamol, more than 90% receive this. People are worried about it causing somnolence, which is rare. It does not mean you have to put everyone on the same dose. If you have a petite older patient, maybe administer 250 mg q8. If it’s a younger patient or larger patient, we may give 750 mg q6. You can adjust the muscle relaxant.

**DR MICHAEL EGGER** (Louisville, KY): How many of these patients were not opioid naïve before surgery? We have looked and found about a third of our patients undergoing major gastrointestinal operation come to us on opioids. Were you able to implement this on those patients who were already on opioids?

**DR CHING-WEI TZENG** (Houston, TX): We looked at all our hepatopancreatobiliary patients, and the most common reason they have some opioid is because, at the very beginning, they were assigned this concept of neoplastic pain and are given a prescription from a non-surgical specialist. So, 35% of people have it on their chart, but they are only using it here and there or if they are anxious the night before their operation, so those patients can be completely weaned off opioids. Only about 5% of our surgical patients are true, chronic opioid users using fentanyl patch, Oxycontin, or other long-acting medication. You are not going to be able to get those people off opioids in the short-term; the best you can do is not escalate. To me, it is a victory if I can perform their operation and not escalate beyond what they were on at baseline.

**DR J CRAIG COLLINS** (Los Angeles, CA): The CDC estimates that last year 70,000 people died in the US of opioid overdose. Surgeons are a little bit like Galapagos finches. We are descended from a common ancestor and then we evolve in our separate microenvironments. You alluded to the idea that you were getting all your practitioners in line. We have seen sabotage from nursing and pharmacy, and they are not totally on board with the idea of multimodal prescribing, so they will say if you have mild pain, take this. If you have moderate pain, take that. And the joint commission is reinforcing that. How are you approaching that at MD Anderson?

**DR CHING-WEI TZENG** (Houston, TX): We have a pain task force, whose primary purpose is not to reduce the amount of pain medicine, but rather to activate pain team consults, which is not exactly what I want in our opioid management goals. So, the main thing is to educate the nurses on the floor and to clean up the Medication Administration Record (MAR). When I look through the chart, if the MAR is still saying IV pain medicine and the patient is already at postoperative day 3, I ask our fellows to transition to oral medication. IV doses should not even be on the medication list once a patient is on postoperative medication, because that gives you the option to choose it. So, the onus is on our provider teams to try to clean up the medication list and only offer oral medication. Our next-door neighbors at UT Memorial Hermann (UT McGovern Medical School) avoid IV patient-controlled analgesia for their trauma inpatients, even rib fracture. If they can do that, then I can perform elective abdominal operations without using too much IV patient-controlled analgesia.