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Recipient of 2017 Endourological Society Medical Student Scholarship

This past summer, I made use of the 2017 Endourological Society Medical Student Summer Scholarship by working on two independent projects. The first project was as proposed in the original application for the scholarship, namely the study of alternatives to opioids in the management of stent pain after ureteroscopy. The second project aims to describe the variability in emergency room discharge instructions regarding nephrolithiasis. Both of these projects were presented as posters at the World Congress of Endourology (WCE) this past September 2017 in Vancouver, BC, and both will be written up as manuscripts by the end of the year.

The state of Vermont was hit with an opioid epidemic in 2014 that made national headlines, before the rest of the country followed suit and declared the opioid crisis an emergent issue. As such, state officials have put pressure on physicians, especially surgeons, to decrease the total amount of prescribed opioids in the community. Recent studies show that nearly 6% of chronic opioid users started with a single prescription of opioids post-operatively to manage their pain. As urologists, we have a responsibility to address this issue. One way to start is by identifying less-invasive surgical procedures in which opioid use is not just minimized, but replaced entirely by an alternative medication. In this case, we sought the use of diclofenac, a high-potency NSAID, commonly used in Europe for post-op pain management. In selectively-targeted patients who are opioid-naïve, diclofenac proved to be more effective than traditional opioids when comparing post-operative visits to the ED, telephone calls to the clinic, and pain medication refill requests using a retrospective chart review. Specifically, 75 patients underwent ureteroscopy with stent placement, of which 30 were given an opioid prescription (40.0%), and 35 were discharged without opioids (46.7%). Of those without an opioid, 33 received diclofenac and 2 patients received no pain medication. 10 patients were excluded from analysis due to the presence of a pain management plan or active use of opioids. A similar percentage of patients receiving opioids and non-opioids had postoperative visits to the emergency room for genitourinary-related concerns (3 patients receiving opioids (10.0%) and 6 patients without opioids ((17.1%); p=0.4120). Patients in the non-opioid group made significantly fewer number of telephone calls compared to patients given opioids (18 patients receiving opioids (60.0%) and 10 patients without opioids ((28.6%); p=0.0114). Similarly, patients not given an opioid at discharge requested fewer pain medication refills (7 patients receiving opioids (23.3%) and 1 patient without opioids (2.86%); p=0.0130). This study demonstrated the feasibility of avoiding the use of opioids for appropriately selected patients undergoing ureteroscopy with stent placement. Prospective studies are needed to define which patients are suitable for this approach to help address the increasing opioid burden in our patient population. As such, we are now in the process of collecting data prospectively along with another institution (Dartmouth-Hitchcock) to assess validity of this association.

The other project that was completed over this past spring and summer as a result of this scholarship was a descriptive analysis of discharge instructions for nephrolithiasis taken from dozens of emergency rooms across the country. This entailed calls to medical records offices and emergency rooms, asking for faxed copies of anonymous, generic discharge instructions given to patients in the ED addressing renal colic, nephrolithiasis, or any similar topic related to stone disease. Of the 134 hospitals we contacted, 46 faxed us a copy, or just over one-third. Nearly all mentioned the etiology of stone pain and most described the common symptoms of kidney stones. About a quarter noted the expected course of kidney stones. Under one-half mentioned imaging that was or should be done in management of renal colic, of which a KUB was the most common imaging modality noted in 90% of cases followed by a CT scan in 70% of cases. 80% of the discharge summaries made note of when to return to the ED, if

needed, and about 43% made note of when to return to the PC. Nearly ¾ of discharge summaries specifically noted that patients should follow-up with a physician about their kidney stones, and 20% of those specifically mentioned a urologist. Nearly all discharge instructions recommended patients to strain their urine, and about 30% recommended NSAIDs for pain relief at home. In terms of specific preventative measures, nearly all summaries advised drinking plenty of fluids. About a quarter of the discharge instructions mentioned exercise recommendations, but these were occasionally contradictory in that some advised bed-rest while others recommended exercise to pass the stone. There were varied recommendations regarding what foods to eat or avoid, with about 43% of the discharge instructions noting these. There were recommendations to increase intake of phytate-containing foods, and foods high in calcium and citrate. And there were recommendations to decrease intake of foods high in oxalate and protein, as well as to avoid caffeine, sodium, and vitamin C. We were surprised to discover that more than 40% of discharge instructions provide diet recommendations without knowledge of stone composition or associated metabolic factors. This finding highlights the need for a standardized set of educational instructions for renal colic.

As a fourth-year medical student, this scholarship opportunity through the Endourological Society has been an invaluable experience in enhancing my critical thinking skills and research interests as related to stone disease. Several attending urologists have inquired about these projects, the scholarship itself, and my posters at WCE throughout the summer, both at conferences and at my month-long sub-internships. I am very thankful to the ***Executive Board of the Endourological Society for giving me this fantastic opportunity to dedicate an extended period of time during my final year of medical school to endourology research before formally beginning my urology career as a resident.