

Bringing Dosages to Safer Levels

PAUL HANSEN, MD

Paul Hansen, MD, an Urgent Care physician in the St. Louis region, is an indefatigable consumer of scientific literature, and began to ask questions about Ketoralac, a widely used pain relief drug, after running across a study of the drug in 2017.

“Ketoralac has been around since the 80’s,” he says, “and it’s widely used. What I found interesting in this study was that it compared the dosages patients were being given, and found no real difference in effects.”

This raised his interest, because Ketoralac can have serious potential side effects. It can eat away at the stomach lining and can cause upper GI bleeding, more generalized bleeding and kidney injury if administered at too high a dose.

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Dr. Hansen did a deep dive into the available scientific literature, and began to have serious suspicions that the drug could be used more optimally.

“An urgent care setting would be a tough place to conduct the study,” he said, “and I thought, ‘Maybe I could look at how it’s used system-wide. Let’s review Ketoralac dosing across the entire system.’”

Dr. Hansen had no research background prior to this project, but he reached out to JoAnne Levy, Vice President, Mercy Research, who was receptive. Mercy Research facilitated a collaboration between Dr. Hansen and Mercy Technology Services, who developed the digital analytical tools that allowed him to mine Mercy’s sea of patient data in Epic. Mercy Research also worked with Dr. Hansen to bring the topic before the Mercy IRB, which approved the research study.

“It was complex, because we looked at a whole raft of variables,” Dr. Hansen said. “We compared the settings where Ketoralac was used – urgent care centers, ERs,



post-op and inpatient settings – the route of administration (whether by intravenous or intramuscular injection), site of administration (hip or elsewhere), the ordering providers, the age of the patient, the diagnostic indication ... basically any variable that could affect the dosage and its effects.”

Eventually, the study reviewed over 100,000 patient encounters, with some interesting results.

“It’s surprising how much was used,” he said, “well above the therapeutic level, and it doesn’t need to be that high. Epic Clinical Guidelines recommend that Ketoralac be administered at 15, 30 or 60 mg levels, but previous studies indicated that 10 mg is fine for most patients. The higher dosage won’t make any difference in the patients’ pain levels,

and could actually be causing more harm than good.”

He submitted his findings at the Missouri ACP conference in 2020 and the national ACP conference in 2021. Additionally, he reached out to Kim Earle, Sr. Consultant Opioid Stewardship, at Mercy Pharmacy. Mercy Pharmacy, already working to limit the use of opiates, was interested in limiting the use of other medications that could have adverse effects, and Kim used Dr. Hansen’s data to recommend limiting the use of Ketoralac at lower doses.

“The next step,” Dr. Hansen says, “is to take it to the Specialty Councils: ER, Urgent Care, Primary Care and Surgical Specialties. But it’s Pharmacy that’s really driving this change, and we’re moving toward a much more judicious utilization and serious adjustment of dosage.”

His overall impressions? “Mercy is a giant organization,” he says. “But the amount of collaboration was impressive. Mercy Research really shepherded the entire project from idea to rough draft to completion, and the work’s continuing.”