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Pediatric Sickle Cell Disease: Analyzing Trends in Medication Utilization

Dr. Turck:
Welcome to *Project Oncology* on ReachMD. I'm Dr. Charles Turck, and joining me to discuss his recent research on medication utilization trends in children with sickle cell disease is Dr. Abiodun Ologunowa. He's a doctoral candidate and research assistant in the Department of Pharmacy Practice and Clinical Research at the University of Rhode Island College of Pharmacy.

Dr. Ologunowa, thanks for being here today.

Dr. Ologunowa:
Hi, Charles, and thank you for having me.

Dr. Turck:
Absolutely. Well, to start us off, would you give us some background on why you decided to look at medication utilization in children with sickle cell disease and how you observe those trends over time?

Dr. Ologunowa:
Absolutely. Sickle cell disease is a well-known genetic disorder that affects about 100,000 people in the United States, disproportionately impacting African-American communities. Despite the availability of evidence-based treatments, many children with sickle cell disease still face preventable complications and early deaths, and that is one of the essential things that motivated, our study. We wanted to understand why these gaps between treatment guidelines and real world practice persist. And then using the large administrative national claims database, we examined medication use in children with sickle cell disease before and after the 2014 National Heart, Lung and Blood Institute treatment sickle cell guidelines were released. Our goal was actually to pinpoint where care aligns with recommendations and where improvements are still urgently needed to ensure better outcomes for these children with sickle cell disease.

Dr. Turck:
Now, from my understanding, both hydroxyurea and NSAID prescriptions for this indication are on the rise, so what factors do you think are primarily driving the increased adoption of these treatments?

Dr. Ologunowa:
That's absolutely correct. While our study did not directly assess what drove the increased use of hydroxyurea and NSAIDs, which are nonsteroidal anti-inflammatory drugs, several contextual factors point to key or important influences.

Our data showed that hydroxyurea use rose fastest among children aged between one to five years with growth across all US regions, especially in the southern part and the northwestern region. And notably, hydroxyurea was being widely used as off-label even before its formal pediatric FDA approval in 2017, and this is supported by clinical evidence and those 2014 guidelines. As for nonsteroidal anti-inflammatory drugs, the rise was actually modest but more meaningful. These drugs were central to non-opioid pain management in children with sickle cell disease. Their increased use likely reflects a shift towards more multimodal guideline-aligned pain strategies, especially after the growing concern over opioid use that led to stricter prescribing practices in 2015 to 2016. However, because many nonsteroidal anti-inflammatory drugs are available over the counter, our claims-based data likely underestimated their full use.

Dr. Turck:
And you briefly mentioned pain management before. If we turn to opioid use for a moment, how have opioid-prescribing patterns shifted,

and what do you make of those trends? What clinical implications could they have?

Dr. Ologunowa:
Over this study period, we've noticed a significant reduction in opioid use among children with sickle cell disease. The opioid use pattern showed an important shift influenced by regulatory changes as well as evolving clinical guidelines. Overall, across the entire study population, we noticed about 48.3 percent of children with sickle cell disease actually used opioids, with a significant average annual decline of about 3.2 percent across the entire study period. The use of opioids was significantly reduced before the 2014 NHLBI sickle cell disease treatment guidelines were introduced—except for oxycodone. However, we observed this lower decline after 2014. Most of these declines were actually a result of a lot of government policy's evolving clinical guideline. For example, following the 2014 reclassification of hydrocodone to a more restrictive schedule 2 controlled substance by the United States Food and Drug Agency, our study observed a decrease in hydrocodone use, reversing the prior poor trend that was observed from 2010 to 2013. Also, in 2017, the FDA contraindicated codeine use in children under 12 years and recommended against its use in adolescents aged between 12 and 18 years. Correspondingly, our study found a significant decline in acetaminophen and codeine use around the period when these guidelines and policies were recommended. In contrast to hydrocodone and codeine, oxycodone utilization increased significantly by 6.3 percent throughout the entire study period, notably after the FDA's 2012 approval of oxycodone solution formulation, which likely encouraged its use in children population.

Dr. Turck:
For those just tuning in, you're listening to *Project Oncology* and ReachMD. I'm Dr. Charles Turck, and I'm speaking with Dr. Abiodun Ologunowa about trends in sickle cell disease medication use in pediatric populations.

So, Dr. Ologunowa, let's shift gears now and talk about patient demographics. Your research suggested disparities in medication utilization by race and household income, so how significant are these disparities, and what might be contributing factors?

Dr. Ologunowa:
While our study reviewed the important trends in medication use across different races and income subgroups, I would like to note that these findings must be interpreted with caution due to the significant missing data. For instance, race was unavailable for over 25 percent of our study population and income for nearly 44 percent. Additionally, race in this data set or this database is actually self reported and may introduce misclassification bias, potentially bias in our subgroup analysis. Despite these limitations, we observed consistent patterns. Hydroxyurea use rose across most racial groups, reflecting improved adherence to the NHLBI guidelines, while opioid use declined across all subgroups—though significant reductions were mainly seen amongst Black and White populations.

I would like to state that our findings highlight the need for more complete demographic data and caution against interpreting declining opioid use as inherently positive in this patient population. We must ensure that the evolving or developing prescribing patterns do not unintentionally worsen the undertreatment of pain, which is actually an issue that disproportionately affects Black patients with sickle cell disease for decades.

Dr. Turck:
Now another question related to disparities in care: what other interventions should we be considering, both in our practices and at a systems level, to ensure more equitable access to treatment?

Dr. Ologunowa:
Considering the declining use of medications that are critical to sickle cell disease management, our response balanced two major goals, which are addressing disparity and ensuring appropriate evidence-based use of essential therapies. At the clinical level, this means that we must not only improve access but also protect against undertreatment of pain. Providers may actually need more support and education to be able to navigate opioid prescribing within the context of sickle cell disease management, where acute and chronic pain are legitimate reoccurring clinical realities rather than drug-seeking behaviors. When we look at it from the systemic lens, we must ensure that policy efforts aimed at curbing opioid misuse do not unintentionally restrict access for those with documented medical needs, like patients with sickle cell disease, such as our study population. Aso, utilizing management tools like prior authorization or separate therapies should be evaluated for their disparate impacts in vulnerable population.

Dr. Turck:
Before we wrap up, Dr. Ologunowa, do you have any final insights you'd like to share with our audience?

Dr. Ologunowa:
Absolutely. And thank you again for this opportunity. If there is one major or critical message I would like to leave with the audience, it is that progress in sickle cell disease care must be both innovative and inclusive. While we observed encouraging trends in our study, such as increased use of hydroxyurea by an average of 8.8 percent each year as well as declining opioid prescribing, we must not

overlook the nuances. For instance, opioid use is essential to managing severe pain, and declining use may sometimes reflect restricted access rather than better care. In addition, we also notice disparities, such as a sharper drop in opioid use among Hispanic patients. These highlights need closer attention. As new therapies like gene therapies and other disease-modifying agents emerge, the challenge now is to ensure these breakthroughs are equitably accessible. To truly move forward, we need data-driven policies. We need data-driven policies as well as deep commitment to equity for all individuals living with sickle cell disease.

Dr. Turck:
Such important reflections for us to consider as we come to the end of today's program, and I want to thank my guest, Dr. Abiodun Ologunowa, for joining me to discuss medication utilization trends in pediatric sickle cell disease management. Dr. Ologunowa, it's great having you on the program.

Dr. Ologunowa:
Thank you so much for having me. It was great being here.

Dr. Turck:
For ReachMD, I'm Dr. Charles Turck. To access this and other episodes in our series, visit *Project Oncology* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening.