Abstract: P1487

Title: REAL-WORLD IMPLEMENTATION OF THE DAVID-CAROLL BUPRENORPHINE PROTOCOL FOR PAIN MANAGEMENT IN SICKLE CELL DISEASE

Abstract Type: Poster Presentation

Topic: Sickle cell disease

Background:

Sickle cell disease (SCD) is a common blood disorder worldwide and acute pain is the most reported complication. Previous studies estimate that > 50% of adults with SCD also experience chronic pain. Buprenorphine/Naloxone is a long-acting opioid that is a potential substitute for full agonist opioids for treating chronic pain in SCD with less risk of overdose. A recent study at Johns Hopkins demonstrated that when SCD is well-managed, affected persons' pain can be treated effectively with buprenorphine-naloxone (using the newly named the "David-Carroll" protocol), resulting in a significant reduction in acute care, less pain and better quality of life.

Aims:

To evaluate the real-world implementation of the "David-Carroll" protocol for the implementation of buprenorphine for chronic pain in people with SCD.

Methods:

This is a retrospective medical chart review designed to evaluate the real-world implementation of the "David-Carroll protocol" for people with SCD. Data extracted from the medical record included demographics, SCD phenotype, SCD therapy, concomitant medications, and healthcare utilization data. This report includes affected adults seen in the comprehensive SCD center at the University of Alabama at Birmingham over a 2-year period from 1/9/2020 to 30/8/2022 who were transitioned to buprenorphine/naloxone or buprenorphine alone for chronic pain management. We compared the healthcare utilization from the six-month period prior to starting buprenorphine (pre-induction) to the six-month period post-induction and analyzed using a paired sample *t*-test. Changes in healthcare utilization were only calculated for participants who continued suboxone for >/= 6-months following induction. Several people in our cohort had received transformative therapies (allo- and auto-transplant) and were transitioned to buprenorphine/naloxone but these people are not included in the pre/post analysis of acute care.

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Results:

Thirty-two adults with SCD were included, 5 of whom had undergone transformative therapy (TT) with allogeneic transplant or gene therapy. Over 50% of participants were female and all identified as African American or Black. The average age at induction was 29.8 years (SD=5.8). Majority (81%) had HbSS type of SCD. Prior to buprenorphine, the mean daily opioid dosage was 118.14 OME (SD=80.49). All participants weaned off full agonist opioids at least 12 hours prior to induction. After 6 months, 28 people (87.5%) remained on buprenorphine, including the 5 who had received TT. In the 23 non-TT patients, there was a statistically significant reduction in the mean frequency of acute care utilization including ED and infusion therapy visits at the SCD center from 10.2 visits pre-induction to 4.4 visits in the post-induction (mean decrease of 5.9 visits, $p<0.001$). Hospitalizations also decreased from 1.8 visits to 0.3 visits post-induction (mean decrease of 1.5 visits, $p = 0.002$) as shown in the table. All TT patients were successfully treated but had remained on chronic opioids due to ongoing pain. These patients have not required acute care since starting buprenorphine/suboxone and did not return to full agonist opioids.

Summary/Conclusion: This report details the adaptation of the David-Carroll protocol for the real-world use of buprenorphine/naloxone in people with SCD highlighting the benefits of this approach to decrease acute care use without full agonist opioids. We are planning a multi-center implementation study to identify which individuals are most likely to be successful with this treatment and to assess the barriers and facilitators to implementation at SCD centers.

Table 1: Changes in healthcare utilization among study participants with SCD who continued buprenorphine for >/=6 months and did not undergo transformative therapy (n=22)

Variables	#Pre-induction	#Post Induction	Mean Diff, *P value
Opioids dosage	118.1 OME (80.5)		
Suboxone dosage		13.4mg (6.8)	+3.3mg, p = 0.002
Acute Care			
6-month ED visit	3.5 (5.2)	1.2 (1.9)	-2.3, p = 0.027
6-month Infusion visit[a]	6.7 (7.6)	3.2 (4.3)	-3.5, p < 0.001
6-month Acute care visit[b]	10.2 (9.4)	4.4 (5.4)	-5.9, p < 0.001
6-month Hospitalization	1.8 (2.3)	0.3 (0.7)	-1.5, p = 0.002
Non-Acute Care			
6-month routine care follow-up visits[c]	4.9 (3.3)	8.5 (3.5)	+ 3.5, p < 0.001

#All numbers reported are mean and standard deviation in parenthesis. *P value reported was calculated using paired-samples t test

a. Includes visits for infusion for acute pain.
b. Includes ER visit and Infusion Visit
c. Includes routine follow-up visits with SCD team.

Keywords: Sickle cell disease