Age-Related Healthcare Service Utilization in Sickle Cell Disease Management

Authors: Shukla N, Barner JC, Rasicati K, Lawson K

Background: Sickle cell disease (SCD) is an inherited, chronic disorder characterized by a defect in the sickle cell hemoglobin gene. Symptoms include vaso-occlusive pain crises, acute chest syndrome, and leg ulcers resulting in frequent hospital admissions, emergency department (ED) and outpatient visits. Approximately 100,000 Americans have SCD with annual mean expenditures ranging from $1.6-$2.4 billion. However, little is known regarding the SCD-related healthcare service utilization among patients of different age groups.

Objective: The objectives are to determine if there are differences in SCD-related healthcare service utilization (ED, inpatient, and outpatient visits) and all-cause prescription medication use by age groups.

Methods: This is a retrospective secondary analysis of Texas Medicaid medical and prescription claims (3/1/2012–8/31/2016). The study included continuously enrolled patients aged 2 to 63 years with one inpatient or one outpatient SCD diagnosis. Patients were followed for 12 months after the index date, which was the date of dispensing of the first SCD-related medication. Dependent variables included proportion of patients with ≥1 SCD-related ED visit, proportion of patients with ≥1 SCD-related hospitalization, number of SCD-related outpatient visits, and number of all-cause prescription medications. The independent variable was age group. Chi-square, ANOVA and Kruskal-Wallis tests were used.

Results: Of included patients (N=2,339), there was a significant difference in ED ($\chi^2=19.5$, p <.001), inpatient ($\chi^2=18.1$, p <.05), outpatient visits ($\chi^2=58.2$, p <.0001), and all-cause medication use (F=37.4, p <.0001) by age group. Proportions of patients having ≥1 ED and inpatient visits were significantly higher among age groups 2-12 (32.2%; 23.0%), 18-25 (29.3%; 25.1%), and 26-40 (32.3%; 22.4%) as compared to age group 13-17 (21.3%; 12.9%). Number of outpatient visits was highest among children (4.5 ± 7.6, p<.0001) as compared to other age groups. Contrarily, mean number of all-cause medications was highest for older adults aged 41-63 (22.4 ± 16.3, p<.0001) as compared to other age groups.

Conclusion: Further research is needed to explore reasons behind incongruently high healthcare services use among children. High ED and inpatient use among young adults may be the result of patients transitioning from pediatric to adult care. SCD-related healthcare utilization patterns could enable providers to identify gaps in care and high utilizers, and to develop age-specific strategies/interventions to promote optimal care transitions among young adults.