ELSEVIER

Blood 142 (2023) 5341

The 65th ASH Annual Meeting Abstracts

ONLINE PUBLICATION ONLY

114.SICKLE CELL DISEASE, SICKLE CELL TRAIT AND OTHER HEMOGLOBINOPATHIES, EXCLUDING THALASSEMIAS: CLINICAL AND EPIDEMIOLOGICAL

Prevalence of Sleep Disordered Breathing in Adult Sickle Cell Clinic Patients and Cardiovascular Correlates

Peter Whitesell, MD[1], *Alem Mehari, MD*[1], *Thomas Mellman, MD*[1], *Daniel Stokes*[1], *Freba Mirzada, MD*[1], *Angela Rock*[1], *James Taylor IV, MD*[2]

[1] Howard University, Washington, DC
[2] Howard University Hospital, Washington, DC

Sleep disordered breathing (SDB) is strongly correlated with hypertension and cardiovascular disease in the general population, and especially in African Americans. In Sickle Cell Disease (SCD), the adverse effect of nocturnal hypoxemia is anticipated to have additional adverse effects with the sickling of red blood cells and microvascular thrombosis unique to the disease. Prospective data regarding the prevalence and consequences of SDB in this population are lacking.

In an ongoing study, 27 adult subjects (age > 18 years), with homozygous HbSS genotype, presenting to the Howard University Sickle Cell Center for routine follow up have been recruited irrespective of the presence of sleep symptoms. Exclusion criteria include previous diagnosis or treatment of a sleep disorder or requirement for supplemental oxygen. Testing occurs when subjects are in a stable phase of disease, with no hospitalizations or medication changes for 4 weeks. In addition to clinical history and questionnaires, participants are assessed with blood work, 6 minute walk testing, pain and sleep diaries during 1 week actigraphy, transthoracic echocardiography and overnight in lab polysomnography with capnography.

At the time of this interim analysis, the mean age is 42 (range 29-71, +/- std dev 11) and male:female distribution is 17:10. The mean BMI is 20.4 (+/- 4.5). Mean Hgb is 9.1 g/dl (+/- 1.8) and mean LDH is 325 iu/L (+/- 163).

Polysomnography scoring utilized a 3% desaturation criterion for hyponeas as per American Academy of Sleep Medicine Scoring Manual Chapter VIII, 1A. Mean sleep efficiency is 77% (std dev +/- 4.2%). 48% of subjects demonstrate some degree of sleep disordered breathing as defined by an AHI > 5 events/hour (33% mild, 4% moderate, 11% severe). 70% of subjects demonstrate an RDI > 5 events/hour (40% mild, 19% moderate, 11% severe). Twelve participants (44%) exhibit more than 5 minutes sleep duration at saturations <89% (mean = 187 minutes). Hypercapnia is not suggested as an important component of SDB with the mean ET CO2 = 40.7 mm Hg (range 30-46 mm Hg).

Echocardiographic values (LVPWd, Lad, MV E/A, PVV, and RVSP) do not correlate with any indices of sleep disordered breathing other than minutes <89% saturation correlating with RVSP.

In summary, this interim analysis of sleep in a population of unselected Sickle Cell Clinic patients demonstrates a striking frequency of sleep disordered breathing. This is despite a generally low BMI for these patients which is typically considered one of the most important risk factor for sleep apnea. Ongoing recruitment is planned to confirm these findings. Correlation with clinical outcomes and potential response to therapeutic interventions will be important future research questions.

Disclosures No relevant conflicts of interest to declare.

https://doi.org/10.1182/blood-2023-190221