Asthma Control and Sleep Outcomes in Urban Children with and without Atopic Dermatitis

Marcella Rita Aquino M.D., Sheryl J. Kopel MSc, Shira Dunsiger PhD., & Daphne Koinis-Mitchell, PhD.
Departments of Psychiatry and Pediatrics, Alpert Medical School of Brown University

• Children with asthma are at risk for poorer sleep outcomes.
• Urban minority children are disproportionately burdened by poor sleep due to socio-contextual stressors and challenges with asthma regimens.
• Atopic dermatitis (AD) is highly co-morbid in children with asthma and can further increase risk for poor sleep.

Methods:
• Data are from a larger study of asthma and sleep in urban and ethnically diverse children (ages 7-9)
• A total of 241 children were enrolled: 206 with persistent asthma only (52% Latino-L, 31% African American- AA, 17% Non-Latino White -NLW), 35 with persistent asthma+ AD (43% L, 46% AA, 11% NLW)
• Diagnosis of asthma: Physician-diagnosed persistent asthma via EPR-3 guidelines
• Diagnosis of AD: Physician report of AD and/or patient was utilizing topocalcorticosteroid therapy
• Sleep outcomes (measured objectively using actigraphy; mean number of awakenings, sleep efficiency) were assessed over the course of 4 weeks during fall/winter season
• Asthma outcomes were assessed via handheld FEV1 measured BID for 4 weeks, asthma control test (ACT) and asthma questionnaire

Results:
Sleep Outcomes:
• In children with Asthma+ AD: (Figure 1a)
  Children with greater number of awakenings had a lower mean FEV1 (rho=-0.39, p<.03)
  (Figure 1a: Sleep Outcomes in asthma+AD: FEV1/# of awakenings)
• In children with Asthma alone: (Figure 1b)
  Better sleep efficiency was associated with better asthma control—ACT score (rho=0.17, p<.03)
  (Figure 1b: Sleep Outcomes in asthma alone: Asthma control (ACT score)/Sleep efficiency)

Asthma Outcomes: In children with asthma alone vs. asthma+AD (Figures 2a/b)
• No difference in FEV1
• No difference in poorly or well controlled ACT scores
• No difference in parental reported asthma symptoms

Conclusions:
• In urban minority children with asthma+AD, sleep outcomes (number of nighttime awakenings) were poorer than their asthma alone counterparts and this was related to mean FEV1 values.
• Further studies evaluating sleep and asthma outcomes in larger samples of urban ethnically diverse children with asthma+AD are warranted.
• Interventions for children with asthma+AD may need to focus on sleep with treatment recommendations tailored specifically for urban children’s asthma, AD, and sleep needs

References:

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