



Cystic Fibrosis Research News

Title:

A Cross-Sectional Analysis of Daytime versus Nocturnal Polysomnographic Respiratory Parameters in Cystic Fibrosis during Early Adolescence

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What was your research question?

Do sleep studies offer data that can identify patients who have premature progression of respiratory disease in cystic fibrosis (CF)?

Why is this important?

The early identification of respiratory abnormalities assists clinicians in timely interventions, in an effort to maintain respiratory health. The teenage years are particularly important, as the progression of respiratory disease can be accelerated.

What did you do?

We asked all children between the ages of 8 and 12 years, who attend our CF clinic, to have an overnight sleep study as well as daytime tests of their pulmonary function and exercise tolerance. That information was then added to their annual clinical review.

What did you find?

From that information, we found that premature lung disease shows up as higher breathing rates in sleep. During REM (dreaming) sleep, our breathing is normally at its lowest rate of the night. Children with premature lung disease show signs of not being able to expel

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enough carbon dioxide. This is an early sign that their lung disease is progressing and thus affecting their breathing function.

What does this mean and reasons for caution?

Until recently, low oxygen levels and frequent night waking were the early signs of sleep issues. However, our study indicates that the breathing function is affected quite early. Since sleep is a relatively stable time to measure this, we suggest that patients have their breathing rate and the change in carbon dioxide during REM sleep included in the report. Whether this has any correlation to long-term outcomes remains to be determined.

What's next?

Eventually, we would like to follow up on our findings and patient outcomes. One study suggested that if children with CF cannot efficiently expel their carbon dioxide during exercise it acted as a marker of future disease progression. We would like to know if this also holds true for the findings of our sleep study findings.

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