

## **Exercise levels may predict hospitalizations in COPD population**

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Clinical measurement of physical activity appears to be an independent predictor of whether or not patients with chronic obstructive pulmonary disease (COPD) will end up being hospitalized, according to a new study conducted by researchers in Connecticut. The study also corroborates an earlier investigation that linked higher levels of inactivity with an increased incidence of hospitalizations among patients with COPD.

The results of the study will be presented at the ATS 2013 International Conference.

"<u>Physical inactivity</u> is common in patients with COPD and appears to predict poor outcome, including more frequent hospitalizations, compared to COPD patients who have higher levels of exercise," said study lead author Sheila Zanoria, MD, resident at the University of Connecticut Health Center in Farmington, Conn. "This remains true even when accounting for other factors that may be present.

"Our study evaluated levels of physical activity and other respiratory measurements, including the six-minute walk distance (6MWD),which measures the distance a patient is able to walk in six minutes," she said. "Then we examined the relationship between those baseline measurements and the subsequent hospitalization rate among the same patients over a four- to five-year follow-up period.

"Ideally, we hoped to identify specific measurements that could be used proactively to help identify which patients are most at risk for



hospitalization," Dr. Zanoria added.

The <u>retrospective study</u> looked at baseline data collected from 60 COPD patients in 2008 and compared that data with the number of hospitalizations that occurred during the follow-up period. Initial baseline data were collected from each patient during a period of seven consecutive days. During that time, each patient wore a tri-axial <u>accelerometer</u>, a device worn at the waist and used to measure physical activity in units called vector magnitude units, or VMUs. VMUs are typically measured continually and then summed up every minute to provide usable data.

During the same seven-day period, researchers also evaluated patients' exercise capacity using the 6MWD, supplemental oxygen use and forced expiratory volume in one second measurement, or FEV1, which measures the amount of air a patient is able to exhale in one second.

Next, researchers looked at the <u>baseline data</u> from each patient to determine if any measurements – singly or in combination – were associated with an increase in the number of subsequent hospitalizations during the follow-up period. Using outpatient and hospital databases, the researchers determined that 34 patients were hospitalized from any cause and 21 were hospitalized for respiratory disease-related illness during that period.

In the initial analysis of data from the study, the researchers noted that oxygen use, lower VMU levels and shorter 6MWD values all were associated with greater numbers of overall and respiratory-related hospitalizations after adjusting for disease severity variables. However, in the multivariate testing, only 6MWD and VMU remained as predictive of hospitalizations.

"Specifically, what we found was that patients who were able to walk



less than 350 meters during the 6MWD and who had VMU scores of under 150 were significantly more likely to be hospitalized, either for respiratory-related causes or for any cause," Dr. Zanoria said.

"These results underscore the importance of both of these variables in assessing COPD severity," she added. "Knowing this may help clinicians expand their efforts in COPD management towards improving <u>physical</u> <u>activity</u> levels of their <u>patients</u>, thereby hopefully reducing healthcare utilization."

Provided by American Thoracic Society

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