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Population-Wide Lung Health: Exposures and Risks

SESSION TITLE: Population-Wide Lung Health: Exposures and Risks
SESSION TYPE: Original Investigations
PRESENTED ON: 10/23/2019 10:45 AM - 11:45 AM

METABOLIC SYNDROME BIOMARKERS OF WORLD TRADE CENTER AIRWAY HYPERREACTIVITY: A 16-YEAR PROSPECTIVE COHORT STUDY

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PURPOSE: Airway hyperreactivity (AHR), related to environmental exposure, is a significant public health risk worldwide. Similarly, Metabolic Syndrome (MetSyn), a risk factor of obstructive airway disease and systemic inflammation, is a significant contributor to global adverse health.

METHODS: This prospective cohort study followed N=7,486 subjects from 9/11/2001 until 8/1/2017, and investigated N=539 with newly developed AHR for clinical biomarkers of MetSyn and compared them to the non-AHR group. Male firefighters with normal lung function and no AHR pre-9/11 that had blood drawn from 9/11/2001-7/24/2002 were assessed. WTC-AHR was defined as either a positive bronchodilator response or methacholine challenge. We modeled the association of MetSyn characteristics at the first post-9/11 exam with AHR.

RESULTS: Those with AHR were significantly more likely to be older, have higher BMIs, have high intensity exposure, and have MetSyn. Smoking history was not associated with WTC-AHR. Those present on the morning of 9/11 had 224% increased risk of developing AHR, and those who arrived in the afternoon of 9/11 had a 75.9% increased risk.

CONCLUSIONS: Having ≥3 MetSyn parameters increased the risk of WTC-AHR by 65.4%.

CLINICAL IMPLICATIONS: Co-existing MetSyn and high WTC exposure are predictive of future AHR and suggest that systemic inflammation may be a contributor.

DISCLOSURES: no disclosure on file for Emily Clementi;

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