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## **Assessment of Oxidative Stress Markers in Obese Patients with Community-Acquired Pneumonia**

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### **Abstract**

Obesity is associated with a low antioxidant defense compared with normal weight. Total antioxidant status is lower in obese than in normal weight adults, and this anti-oxidant imbalance favors systemic oxidative stress. Pneumonia is one of the most common infectious diseases, and the impact of obesity in the development and progression of the disease is well known. However, there are debatable opinions about the association between obesity and pneumonia risk or pneumonia mortality, some of them supporting the obesity survival paradox. The article reflects a clinical study based on initial hypothesis of more expressed pro-oxidative status and worse outcomes in obese patients with community-acquired pneumonia in comparison with normal weight patients. The study included 101 patients with CAP, who were divided into two groups, according to their weight. Serum markers of oxidative stress (advanced oxidation products, malondialdehyde, advanced glycation end products and nitric oxide) as well as pneumonia-related mortality did not differ significantly in obese and normal weight patients. Unlike other antioxidative markers (total antioxidant capacity measured by ABTS method, catalase and thiolic compounds), total antioxidant activity measured by CUPRAC method showed a positive correlation with the obesity cases and proved to be an important and promising tool to assess the anti-inflammatory and protective antioxidative activity in community-acquired pneumonia.

*Keywords: oxidative stress, community-acquired pneumonia, obesity paradox*



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