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Changes in Cardiorespiratory Function and Its Influencing Factors in Elderly Patients with Diabetes and Pulmonary Infection

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ABSTRACT Elderly patients with diabetes exhibit a heightened susceptibility to pulmonary infections, a condition that precipitates severe cardiopulmonary dysfunction and elevates mortality rates. While traditional narratives attribute this solely to hyperglycemia-induced immune suppression, recent evidence suggests a more complex interplay involving microvascular fragility, neural dysregulation, and age-related physiological decline. This critical review synthesizes clinical data from 2020 to 2025 to evaluate the mechanistic pathways linking diabetes to cardiopulmonary deterioration during infection. Unlike previous descriptive summaries, this study critically compares conflicting findings regarding glycemic thresholds, antibiotic efficacy, and the timing of rehabilitation interventions. A systematic analysis of literature reveals that prolonged hyperglycemia, combined with specific pathogen virulence factors, creates a synergistic burden on cardiac output and lung ventilation. However, significant heterogeneity exists in current studies regarding optimal glycemic targets during acute infection. The findings underscore the necessity for personalized, multi-modal interventions that extend beyond standard antimicrobial therapy to include early cardiopulmonary support and precise metabolic modulation. This review identifies critical gaps in current longitudinal data and proposes a framework for future empirical research.