INVESTIGATION OF RISK FACTORS FOR THE DEVELOPMENT OF ACUTE RESPIRATORY FAILURE IN INPATIENT PRACTICE

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INTRODUCTION

Acute respiratory failure (ARF) is one of the most severe and life-threatening conditions encountered in clinical practice. It represents a pathological state in which the respiratory system is unable to maintain adequate oxygenation of the blood and/or elimination of carbon dioxide, leading to impaired gas exchange and subsequent dysfunction of vital organs.

The development of ARF is not an independent disease, but rather a complication of various underlying pathological processes such as pneumonia, chronic obstructive pulmonary disease (COPD), cardiovascular disorders, sepsis, and trauma.

According to global epidemiological data, the incidence of ARF is steadily increasing, particularly among elderly patients and individuals with multiple comorbidities. Mortality rates remain high, ranging from 30% to 50% depending on the etiology, severity, and timeliness of medical interventions.

The socioeconomic burden of ARF is also significant, as it leads to prolonged hospitalization, the need for intensive care, and increased healthcare costs. Early recognition of ARF and identification of its predisposing risk factors are therefore of crucial importance.

Timely diagnosis allows initiation of appropriate oxygen therapy, non-invasive or invasive ventilation strategies, and prevention of multi-organ complications. In clinical practice, however, diagnostic errors and delayed recognition of respiratory failure are still frequent, which contributes to poor outcomes. In this context, studying the risk factors for ARF development in hospitalized patients is highly relevant.

It provides an opportunity not only to improve prognosis and reduce mortality, but also to enhance the quality of medical care by optimizing early diagnostic and therapeutic approaches.

Materials and Methods:

This study was conducted at the intensive care and therapeutic departments of a multidisciplinary hospital in Tashkent. An analysis of 50 case histories of patients who developed acute respiratory failure during hospitalization was carried out. Criteria: Age over 18 years; Development of ARF during hospitalization; Presence of objective signs of ARF ($SpO_2 < 92\%$, $PaO_2 < 60$ mmHg, RR > 25/min).

Results: 1. General data: Mean age of patients: 63–65 years, Men – 58%, women – 42%, In 60% of patients ARF developed in the first 2–3 days after admission, 74% suffered from chronic diseases (COPD, diabetes mellitus, heart failure). 2. Causes of ARF development: Pneumonia – 48%, COPD exacerbation – 22%, Sepsis and multiple organ failure – 18%, CHF and MI – 12%.

Discussion: Based on the presented data, we found that old age, the presence of pneumonia, COPD, and heart failure are the main predisposing factors for the development of ARF. The frequency of complications was also high in patients admitted with signs of respiratory failure but without timely oxygen support. Diagnostic errors are also an important factor. In 40% of cases, pulse oximetry was not performed at admission despite complaints of shortness of breath. In 53% of cases, ARF was diagnosed late, which increased the risk of adverse outcomes.

Conclusions:

1. Acute respiratory failure most often develops in patients with pneumonia, COPD, heart failure, and sepsis.

2. The main risk factors are: advanced age, the presence of two or more chronic diseases, decreased oxygen saturation at admission, and late diagnosis.

3. Regular pulse oximetry, early monitoring of RR and oxygen saturation, as well as a protocol-based approach to assessing respiratory function are important preventive measures of ARF.