

Prevalence of Post Intensive Care Syndrome in Adult After Cardiac Surgery

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Abstract: *Background:* Post-intensive care syndrome is the most common complication in patients discharged from ICU, which seriously affects the life quality of the patients. Adult patients after cardiac surgery, as a special group admitted to the ICU, have many differences Characteristics of other ICU patients, the purpose of this study was to describe the prevalence of post-intensive care syndrome in adult survivors after cardiac surgery. *Objective:* To investigate the current status of Post-intensive care syndrome after cardiac surgery in adults, and to provide evidence support for targeted intervention measures in the next step, so as to improve the quality of life of patients transferred from ICU after cardiac surgery. *Methods:* In this study, a cross-sectional survey and convenient sampling were used to select 120 adult patients admitted to ICU after cardiac and vascular surgery from June 2021 to June 2022 in two tertiary hospitals in China. A questionnaire survey was conducted on ICU transferees in the form of a questionnaire at the time of 3 month outpatient review. The judgment of Post-intensive care syndrome is mainly based on psychological basis by the Hospital Anxiety and Depression Scale. *Results:* This study eventually included 120 research object, with a loss of follow-up rate of 6.3%. The age range is 33-88 years old, with an average of 64.40±8.20. Among them, the proportion of males was 62.5%; there were 45 females, accounting for 37.5%; there were 32 patients with anxiety symptoms during this study, and the incidence of anxiety was 26.7%. There were 38 patients with depressive symptoms, and the incidence of depression was 31.7%. There were 27 patients with anxiety and depression symptoms, and the incidence was 22.5%. According to the definition of Post-intensive care syndrome, the incidence of Post-intensive care syndrome was 31.7% during this study. *Conclusion:* For patients admitted to ICU after cardiac surgery, the incidence of Post-intensive care syndrome is high. Clinical workers should pay attention to the long-term mental health of patients transferred out of ICU and take measures to prevent and reduce the occurrence of psychological disorders.

Keywords: Patients After Cardiac Surgery, Psychological Disorders, Post-Intensive Care Syndrome

1. Introduction

With the development of medical technology in China, the case fatality rate of severe patients has decreased significantly, and the number of patients transferred out of intensive care unit (ICU) has been increasing, and its long-term outcome has received more and more attention. Post-intensive care syndrome (PICS) is the most common complication in patients discharged from ICU, which seriously affects the life quality of the patients [1]. Several studies have documented that ICU survivors often suffer

long-term complications, such as post-intensive care syndrome from ICU hospitalization. PTSD greatly affects the quality of life of ICU survivors, and also places a great burden on families and the healthcare system [2]. The assessment of PTSD can provide guidance for the implementation of intervention program, promote meaningful patient-centered clinical outcomes, minimize long-term sequelae, reduce readmission rates, and optimize recovery after ICU discharge. In the past few decades, the chance of survival after critical illness has increased dramatically, resulting in a new cohort of ICU survivors who have suffered mid- and long-term damage from ICU

care, usually facing problems in three domains: mental health, cognition and physical function [3]. In 2010, participants at a pioneering stakeholders' conference proposed an overarching term PICS to cover persistent impairments to ICU patients [4]. Studies have shown that 64% and 56% of ICU survivors have one or more post-intensive care syndrome problems at 3 months and 12 months after leaving the intensive care unit, respectively [5]. Surgical ICU survivors, as a special group, are often more vulnerable to physical and psychological burdens because of surgical trauma, studies have found that up to 42.9% of surgical ICU survivors have mental symptoms.

Adult patients after cardiac surgery, as a special group admitted to the ICU, have many differences Characteristics of other ICU patients, purpose of this study was to describe the prevalence of post-intensive care syndrome in adult survivors after cardiac surgery, To carry out the description and intervention measures of post-intensive care syndrome in China For reference, ultimately achieving the goal of promoting the full recovery of ICU survivors.

We conducted a clinical study to investigate and clarify the prevalence of PICS in critically ill patients after cardiac surgery during hospitalization.

2. Patients and Methods

2.1. Study Design

This research design adopts the research method of cross-sectional survey. Approval for this study was granted by the Ethics Committee of Deyang People's Hospital (approval number: 2021-04-083-K01), all patients in the study received written informed consent.

2.2. Study Population

The survey was conducted among patients who underwent heart surgery discharged from the ICU between From June 2021 to June 2022. In this study, the inclusion criteria included patients after heart surgery; Over 18 years of age. The exclusion criteria were patients who could not obtain written informed consent; Patients who meet the inclusion and exclusion criteria will enter this study.

2.3. Procedures

The survey was conducted among patients who underwent heart surgery discharged from the ICU between From June 2021 to June 2022, before sending the questionnaire, a telephone or WeChat call was also conducted, including Sex, age and other general information, Hospital Anxiety and Depression Scale [6, 7].

2.4. Outcomes

In this study, the primary outcome was the prevalence of PICS. PICS was defined as any one of the following mental disorder: mental disorder as a score of ≥ 8 points on the HADS-anxiety or HADS-depression scale [8, 9].

2.5. Statistical Analysis

Data analysis was performed using SPSS 22.0 (IBM, Armonk, NY, USA), Counting data is expressed as n (%); measurement data is described with means \pm standard divisions (SD).

3. Results

This study eventually included 120 research object, The age range is 33-88 years old, with an average of 64.40 ± 8.20 years old. Among them, 75 were males, accounting for 62.5%; there were 45 females, accounting for 37.5%; there were 32 patients with anxiety symptoms during this study, and the incidence of anxiety was 26.7%. There were 38 people with depressive symptoms, and the incidence of depression was 31.7%. The number of people with anxiety and depression symptoms was 27, and the incidence was 22.5%. According to the definition of Post-intensive care syndrome, the prevalence of Post-intensive care syndrome was 31.7% during this study. Demographic and clinical features are shown in Table 1. Prevalence of Mental Symptoms shown in Figure 1.

Table 1. Demographic and clinical data during ICU admission.

	N=120
Sex, male n (%)	75 (63)
Age, mean (SD), years	64 (8)
Ethnicity	
Han, n (%)	115 (96)
Other, n (%)	5 (4)
Comorbidities	
hypertension, n (%)	102 (85)
Diabetes, n (%)	30 (25)
Dyslipidemia, n (%)	62 (52)
Cancer, n (%)	11 (9)
Other	56 (47)
Clinical data	
APACHE II, mean (SD)	14 (4)
Days during ICU, mean (SD)	7 (3)
Sedative drugs, n (%)	57 (48)

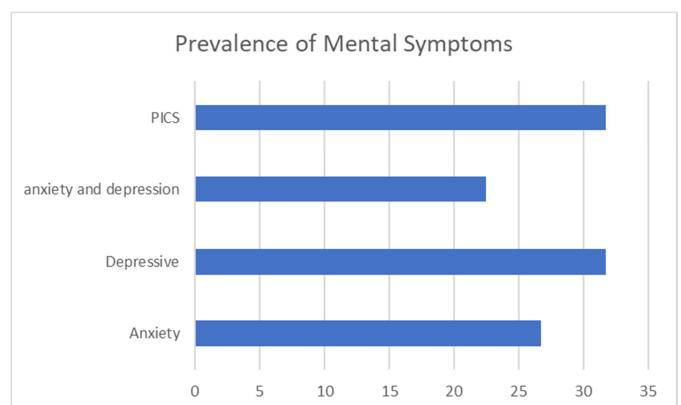


Figure 1. Prevalence of Mental Symptoms.

4. Discussion

With the development of medical technology, more and more patients can survive from critical illness. PICS can not

only reduce the patient's life happiness index, but also increase the family and social economic burden. According to statistics, ICU survivors need to pay \$ 20,000 to \$ 70,000 a year to maintain their lives. [10] At present, there is no uniform standard for the intervention measures of PICS in China, and there is a big gap between the research of PICS and that of European and American countries [11, 12]. In this study, we investigated the current situation of Post-intensive care syndrome after cardiac surgery in adults, and provided evidence support for targeted interventions in the next step, so as to improve the quality of life of patients transferred from ICU after cardiac surgery.

The results of this study showed that the incidence of anxiety in patients after cardiac surgery was 26.7%. A foreign meta-analysis showed that the prevalence of anxiety symptoms at 2-3 months, 6 months and 12-14 months after critical illness was 32%, 40% and 34%, respectively, and the anxiety score or prevalence did not change significantly over time [13]. The results of this study are lower than other studies, which may be due to the different types of diseases involved in different studies, the critical value of the assessment tools used, and the different incidence of reported anxiety.

This study found that 38 people had depressive symptoms, and the incidence of depression was 31.7%. A foreign meta-analysis showed that the prevalence of depressive symptoms in ICU patients transferred for 2-3 months, 6 months and 12-14 months was 29%, 34% and 29%, respectively, which was consistent with the results of this study [14]. Combined with the definition of Post-intensive care syndrome, during this study, the prevalence of Post-intensive care syndrome was 31.7%.

5. Conclusion

For patients admitted to ICU after cardiac surgery, the incidence of anxiety was 26.7%, the incidence of depression was 31.7%, the incidence of anxiety and depression symptoms was 22.5%. The prevalence of Post-intensive care syndrome was 31.7%, with a high incidence. Clinical workers should add more attention to the long-term mental health of patients transferred out of ICU and take measures to prevent and reduce the occurrence of psychological disorders.

This study also has some limitations. First of all, the sample size was small. It is recommended to carry out a multi-center survey of large samples in the next step.

Conflicts of Interest

Authors have no conflicts of interest to declare.

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