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Prevalence and risk factor of Anemia among Hemodialysis patient: Prevalensi dan faktor risiko anemia pada pasien hemodialisis

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Abstract

General Background: Anemia is a common and clinically significant complication among patients undergoing hemodialysis, contributing to increased morbidity and complex clinical management in chronic kidney disease. **Specific Background:** Patients with end-stage renal disease receiving maintenance hemodialysis frequently experience reduced hemoglobin levels related to impaired erythropoietin production, iron deficiency, and comorbid conditions. **Knowledge Gap:** Despite extensive international evidence, limited localized data are available regarding the prevalence and associated factors of anemia among hemodialysis patients in the studied setting. **Aims:** This study aimed to determine the prevalence of anemia and identify related demographic and clinical characteristics among patients undergoing hemodialysis. **Results:** The findings demonstrated a high proportion of anemia among hemodialysis patients, with variations observed according to age, gender, and selected clinical parameters. Laboratory indicators and treatment-related variables were associated with the occurrence and severity of reduced hemoglobin levels. **Novelty:** This study provides updated contextual evidence on anemia distribution within a defined hemodialysis population, contributing locally derived clinical data to the existing body of nephrology research. **Implications:** The results underscore the need for structured anemia monitoring, optimized management strategies, and continuous evaluation of hematological parameters in dialysis centers to support improved patient care and clinical decision-making.

Keywords: Anemia, Hemodialysis, Chronic Kidney Disease, Hemoglobin Level, Prevalence

Key Findings Highlights:

1. A substantial proportion of dialysis recipients presented with reduced hemoglobin values.
2. Demographic and clinical characteristics were linked to variations in blood parameters.
3. Routine hematological assessment remains essential in long-term renal replacement therapy.

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Introduction

An irreversible reduction in kidney function that is severe enough to be fatal in the absence of dialysis or transplantation is referred to as renal failure. The National Kidney Foundation Kidney Disease Outcomes Quality Initiative classifies chronic kidney disease into five stages, with stage 5 referring to renal failure. This stage describes people with an estimated glomerular filtration rate of less than 15 mL per minute per 1.73 m2 body surface area or those who need dialysis regardless of glomerular filtration rate.(3) (4)

ESRD (End-stage renal disease) affects over 400,000 Americans, necessitates kidney transplantation or dialysis in order to survive. The only disease-specific Medicare program that provides coverage based on diagnosis to individuals of all ages is ESRD. In more than 4,500 institutions all over the United States in 2003, more than 340,000 people received dialysis treatments. Total Medicare expenses for the ESRD program were $17 billion in 2002, an 11% increase over expenditures in 2001. (6) (11)

A lower-than-normal hemoglobin concentration indicates anemia, which is caused by the circulation of fewer erythrocytes than is considered normal. As a result, less oxygen is being given to the body's tissues. Anemia is a symptom of underlying disorders rather than a unique disease condition. It is unquestionably the most prevalent hematologic disorder. Anemia comes in a variety of forms. Anemia is categorized using a physiological method based on whether the lack of erythrocytes is due to a problem with their generation (hypoproliferative anemia), their destruction (hemolytic anemia), or their loss (bleeding). (7)(8).

Chronic kidney disease (CKD) sometimes includes anemia, which is linked to worse outcomes. Recent clinical trials have shown increased morbidity and mortality linked to erythropoiesis stimulating drugs, raising questions about the current therapy of patients with anemia in CKD. Here, we look at recent discoveries regarding the molecular pathways underlying CKD-related anemia. These discoveries suggest new diagnostic procedures and therapeutic approaches that specifically target the pathophysiologic mechanisms producing this type of anemia. (1).

Methodology

To determine the prevalence and risk factors of anemia among hemodialysis patients in Imam Al-Hussein Medical City in Karbala city, a descriptive quantitative design is being used. was completed during the current study in order to fulfill the initial stated goals. The trial was started on February 3 and ran through February 15.

Data was gathered using a structured questionnaire with two parts: part I (demographic data) included fifteen (15) items, while part II (anemia prevalence questionnaire) had twenty-five (25) items. It was also obtained through interviews. Individual interviews with corona virus survivors were conducted in both urban and rural areas of Karbala. The interview takes each person between 10 and 15 minutes to complete.

The results of a pilot study and the computation of the alpha correlation coefficient were used to assess the questionnaire's accuracy. A committee of eight specialists from the Karbala University/College of Nursing will evaluate the questionnaire's reliability.

A non-probability (purposive) sample of (100) renal failure patients who had hemodialysis treatment and attended the Habib ibn Mozaher Al- Asaadi center between February 3 and February 15, 2019.

Results and Discussion

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