

FADOI survey on chronic kidney disease and anaemia in internal medicine departments of Italian hospitals

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Introduction

The presence of anaemia in patients with chronic kidney disease (CKD) is associated with decreased quality of life, along with increased morbidity, mortality, and hospitalization rates. This, in turn, affects healthcare costs and the utilization of medical resources.¹ The mechanisms involved in anaemia of CKD are diverse and complex. They include reduced production of endogenous erythropoietin (EPO), absolute and/or functional iron deficiency (due to inflammation

leading to elevated levels of hepcidin), the diminished response of the bone marrow to EPO due to uraemic toxins, the shortened lifespan of red blood cells (RBC), and deficiencies in vitamin B12 or folic acid.²

Currently, the standard treatment includes the administration of oral or intravenous iron supplements,³ the utilization of erythropoiesis stimulants, and RBC transfusions. In recent years, there have been promising advancements in the management of CKD-related anaemia, fostering research and training focused on this condition.⁴

In light of the aforementioned considerations, the FADOI Foundation (Fondazione FADOI) is endorsing a project on CKD-related anaemia: a nationwide survey involving 16 centers across Italy. The objective of this study is to examine the impact of the issue and its treatment in Internal Medicine Departments. The intention is to identify data that can be utilized in subsequent interventions (such as training and raising awareness) to enhance the management of patients with CKD and anaemia.

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Materials and Methods

The board of experts of the Foundation, with the organizational and operational assistance of the Clinical Research Department of its Research Centre, developed a tailored questionnaire to serve as the basis of the survey. The questions were categorized into five main sections: general and organizational details of the participating center; epidemiology of anaemia and CKD; classification and stratification of patients with anaemia and CKD; pharmacological treatment for anaemia and CKD during hospitalization and after discharge; any pre-admission and post-discharge monitoring.

The project progressed through several subsequent stages, as follows: i) development of the survey questionnaire; ii) selection of 16 internal medicine depart-

ments in hospitals within the FADOI network. These departments were considered representative of the overall situation in Italy. Survey responses were to be collected through the local Project Coordinator for each participating center; iii) presentation of the survey through a live webinar on February 8th, 2023. The webinar involved the Scientific Board of the FADOI Foundation's Clinical Research Department and representatives from the participating centers (1-2 individuals per center). The presentation covered the project's objectives, methodology, and data collection timeframe; iv) within two months of the webinar, each participating center's Project Coordinator was responsible for identifying 30 clinical records of in-patients in Internal Medicine with CKD and anaemia. These records would provide the necessary aggregate information for the survey; v) quality control, analysis, and critical evaluation of the collected information by the FADOI Research Centre; vi) preparation of a report on the project's outcomes by the FADOI Research Centre.

Results

Key findings from the survey, which took place from February 9th to April 18th, 2023, and was overseen by 16 heads of internal medicine departments within the FADOI network, are here highlighted: i) based on the collected responses, in-patients with both anaemia and CKD accounted for approximately 20% of all hospitalizations in internal medicine departments. However, there was a wide variation in the results among different centers, ranging from 2% to 53%. This discrepancy reflects the heterogeneous approaches taken toward this particular issue (Figure 1); ii) anaemia is a significant epidemiological concern in relation to kidney failure, as it was present in 60% of all CKD pa-

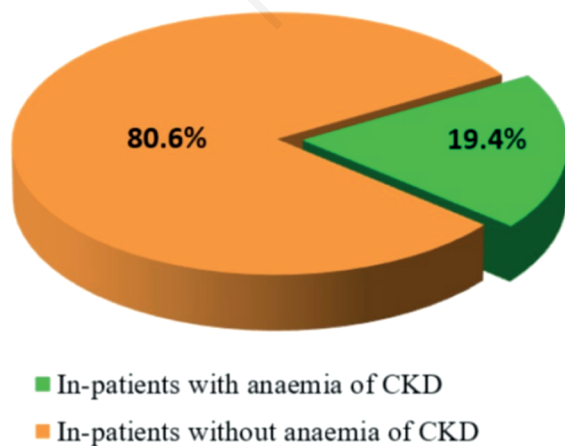


Figure 1. In-patients with anaemia and chronic kidney disease account for a mean percentage of about 20% among all those hospitalized in internal medicine departments.

tients; iii) the survey clearly indicates that CKD is frequently accompanied by other chronic diseases, as over 70% of CKD patients are considered to have at least three concurrent conditions; iv) the survey reveals that over 90% of the in-patient sample with CKD-related anaemia were in the more advanced stages of CKD (KDIGO stages III-IV-V), and their treatment regimen involved an average of over 7 different medications upon admission; v) among patients with CKD and anaemia, over 60% had a hemoglobin level below 10 g/dL, but only approximately 50% were receiving treatment for anaemia at the time of admission; vi) in 75% of patients hospitalized for CKD and not meeting the target hemoglobin levels, therapy optimization was implemented (Figure 2); vii) when internists aim to restore target hemoglobin levels in hospitalized patients, the intervention primarily involves initiating new therapy for previously untreated individuals. For those already undergoing treatment, two equally common types of interventions were reported: the addition of one or more new medications alongside or in replacement of the current treatment(s), and dosage adjustment; viii) various reasons account for the lack of attempted therapeutic optimization. These include patient characteristics such as advanced age, frailty, presence of comorbidities, and multiple ongoing treatments, which may result in limited potential for significant improvement in target values. Additionally, the prioritization of concomitant acute clinical conditions takes precedence over addressing anaemia; ix) the finding that nearly 50% of patients with CKD-related anaemia had been previously hospitalized within the past year underscores the fragility and complexity of this population; x) approximately 65% of the patients identified by participating centers were receiving treatment at specialized hospital clinics. Despite the important role played by internal medicine departments, only 25% of these dedicated clinics for

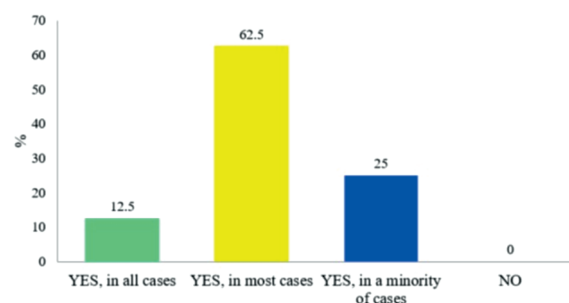


Figure 2. In 75% of patients hospitalized for chronic kidney disease and not in line with target Hb, optimization therapy is undertaken.

CKD-related anaemia fell under their jurisdiction, while an additional 6% were partially staffed by internists; xi) in a notable proportion of centers/patients (36%), no follow-up visits were scheduled after discharge.

Discussion and Conclusions

In conclusion, this project has highlighted the significant and challenging role of internal medicine departments in the management of patients with CKD-related anaemia, both in terms of quantity and complexity of cases.

A considerable number of patients admitted to these departments with CKD-related anaemia exhibit inadequate management of their condition. Without delving into the multiple causes of this phenomenon, it emphasizes the importance of raising awareness, both at the primary healthcare level and within the specialized environment of internal medicine departments.

This consideration is based on a dual perspective: firstly, hospitalization can serve as a crucial opportunity to optimize therapy in a controlled setting; secondly, internal medicine departments can play a distinct role by

operating dedicated hospital clinics. This highlights the potential and significant contribution that internal medicine departments can make to the long-term management of these patients, as well as the necessary collaboration and integration between specialists and generalists.

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