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Research Article

# Kidney Damage in Hematological Diseases in the Oncology Hematology Department of the National Donka Hospital

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## Abstract

**Introduction:** Kidney disease is a major public health problem. Kidney damage is common in hematological diseases. The objective of our study was to look for kidney damage in hematological diseases. Material and Methods: We did a retrospective study lasting 2 years from January 1, 2019 to December 31, 2020, in the hematology department of Donka National Hospital. We included all the files of patients followed for benign or malignant hematological disease, then we looked for an anomaly of renal function, an anomaly on the urinary dipstick.

**Results:** Of a total of 480 records reviewed, we found that 53 patients had kidney disease (11.04%). The average age was 49 years ± 13.78. there a male predominance 28 (52.83%) against 25 (47.17%) among women. The comorbidities encountered during the study were hypertension in 20 patients. The most frequent hematological pathology in the study was sickle cell disease in 19 patients (35.84%) followed by myeloma in 8 patients (15.09%). Renal damage encountered during these hematological diseases was associated with acute renal failure 16 (30.18%) and chronic renal failure 19 (35.84%), without renal failure 18 (34.34%).

**Conclusion:** Our study allowed us to understand the high frequency of renal involvement in hematological pathologies that affected relatively young subject. Kidney damage can be acute or chronic, hence the need for early management through screening.

**Keywords**: Kidney Disease; Chronic Renal Failure

## Introduction

Kidney damage is a major and growing public health problem [1,2]. They are defined by the presence of biological markers (proteinuria, hematuria) and/or histological abnormalities, and/or renal morphological abnormalities. Kidney damage is common in hematological diseases. They are sometimes inaugural or occur during the course of the disease. They can be obstructive origin or secondary to acute tubular necrosis (ATN) or manifest as paraneoplastic glomerulonephritis [3].

The prevalence of renal damage in hematological disorders increases with age, with a median at diagnosis of around 65 years [4]. In Nigeria, in a study reported by Aneke., *et al*. on 78 subjects with sickle cell disease with SS phenotype, the prevalence of chronic kidney disease (CRD) at stage 4 was 5% [5]. In Morocco in 2016, Idrissa Azrouf in her doctoral thesis in medicine reported that the peak frequency of multiple myeloma is observed between 60-69 years old (35%) and between 50-59 years old (25%) [6].

## Material and Methods

We conducted a retrospective study lasting 2 years from January 1, 2019 to December 31, 2020, in the hematology department of Donka National Hospital. The objective was to look for kidney damage in hematological diseases. We included all records file of patients followed for benign or malignant hematological disease, then we searched for:

- Anormal kidney function
- An anormality in the urine dipstick
-A renal morphological and / or histological modification.

Our study variables were: age, sex, profession.

The history of hematological disease found during the study was: sickle cell disease, leukemia, lymphoma, myeloma.

### Biology

We analyzed the result of the urinary dipstick in search of renal damage characterized by screening for proteinuria, haematuria, leukocyturia associated or not with renal insufficiency.

- **Imaging:** Abdomino-pelvic echo looking for a renal morphological abnormality, a pelvic mass due to hematological pathology.
- **Renal disease sought:** Acute renal failure (functional, obstructive, organic) and chronic renal failure.

## Results

Of a total of 480 records reviewed, we found that 53 patients had kidney disease (11.04%). The average age was 49 years ± 13.78. There is a male predominance 28 (52.83%) against 25 (47.17%) among women. The comorbidities encountered during the study were hypertension in 20 patients (see table 1).

The most frequent hematological pathology in the study was SS sickle cell disease in 19 patients (35.84%) followed by myeloma in 8 patients in 15.09% (Table 2).

The renal damage encountered during these hematological diseases was associated with acute kidney failure 16 (30.18%) and chronic renal failure 19 (35.84%), without renal failure 18 (34.34%).

| Comorbidity | Number | (%) |
|---|---|---|
| HTA | 20 | 37 ,73 |
| Diabetes | 5 | 9,43 |
| HIV | 5 | 9,43 |
| Gastritis | 2 | 3,77 |
| Hepatitis | 1 | 1,88 |

**Table 1:** Comorbidity screening in hematologic disease.

## Discussion

Our study allowed us to know that kidney disease is very common in hematological pathologies, kidney damage can be acute depending on the clinical context of the patient, it can also be chronic depending on the evolution of the disease and the associated comorbidities. The kidney disease and aging in this situation explain why the frequent occurrence of haemopathies in patients often over 65 years old, such as myeloma or leukaemia, chronic lymphoids. Kidney damage does not have a predilection according to sex, it can occur in both men and women. Environmental risk factors such as electromagnetic fields, UV radiation, pesticides, exposure to hydrocarbons and atmospheric pollution are implicated in the occurrence of certain blood diseases with renal impairment. Anemia was the most predominant biological sign, 94.33% in our

study. However, our result is much higher than those reported by Corlu L., *et al*. [9] in France in 2019 who reported 50% anemia.

Anemia in our context is multifactorial, it generally occurs during infectious pathologies and during digestive microbleeds which are not well controlled. Renal failure testifies to the degree of impairment of renal function during hematological diseases, it involve towards chronicity when it is associated with hypertension, diabetes. Our results are similar to those of Corlu L., *et al*. [9] in France in 2019 who reported 35% high blood pressure and 8.8% diabetes and Strati P., *et al*. [7] in the USA in 2015 had 53% high blood pressure and 10% diabetes. SS homozygous sickle cell disease is a very common hereditary condition in Africa due to the lack of prenuptial screening, consanguineous marriages and the lack of awareness among the population. The SS phenotype being the most severe form of sickle cell disease, on the one hand by its anemic, its high frequency in this study is in line with litterature knowledge relating to SS type sickle cell patients.

Carnet E., *et al*. [8] in France in 2013 reported that the hematological malignancies found were 53.5% lymphoma, 29% myeloid leukemia and 11.5% lymphoid leukemia. This demonstrates that kidney damage is frequent and varied in haematological diseases and that all sectors of the renal parenchyma (tubes, interstitium, glomeruli, vessels) can be affected.

## Conclusion

At the end of our study the hospital frequency was 11.04%. This population, adults whose average age was 49 years ± 13.78 residents in urban areas and not educated were the most affected with a slight predominance of the male sex. Hypertension, followed by diabetes were the most common comorbidity factors. In addition, we found that end-stage chronic renal failure (35.84%) followed by acute functional failure (30.18%) were the most common types of renal damage. Therapeutic interventions include symptomatic treatment and the use of dialysis support therapy. Early screening of patients with hematological diseases is necessary in order to facilitate better patient care.

## Declaration of Conflict of Interest

None.

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