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Anemia in the Elderly: Epidemiological, Clinical and Etiological Aspects in Internal Medicine at the Point "G" University Hospital

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Abstract **Original Research Article**

***Introduction*:** Anaemia is a condition that is often underestimated and insufficiently treated in the elderly. It is the most common haematological problem in this age group, with 30% of aetiologies remaining unexplained. In our context, few patients benefit from investigation, hence this study to assess the state of anaemia. ***Methods*:** We conducted a retrospective study from January 2011 to December 2012 in the internal medicine department of the Point "G" University Hospital. All hospitalised patients aged 65 and over with anaemia according to the WHO definition were included. ***Results*:** Among 199 elderly subjects hospitalised during our study period, 95 (47.73%) presented with anemia. The sex ratio was 1.71. The mean age of the patients was 73.39 ± 6.65 years. Weight loss (82.1%), polypnea (56.5%) and dyspnea (21.1%) were the predominant clinical manifestations. The mean haemoglobin level was 8.93 g/dl, with extremes of 3.1 and 12.5 g/dl. Aregenerative normochromic anemia (37.9%) was the most common. Inflammatory anemia was the main cause of anemia in the elderly (58.6%), followed by multifactorial anemia (20.7%), renal failure (6.9%) and unknown causes (6.9%). ***Conclusion*:** Anemia is a frequent condition in elderly patients in internal medicine, dominated by inflammatory causes.

Keywords: Anemia, haemoglobin, inflammatory, elderly.

INTRODUCTION

Many situations that are clearly pathological in young people are often accepted as 'normal' and part of physiological aging in the elderly. This is the case with anemia, which is all too often underestimated and insufficiently treated. It is the most common haematological problem in the elderly [1].

A low haemoglobin value in the elderly should always be considered pathological. In fact, it is associated with a poor prognosis in terms of morbidity (falls, hospitalisation, cognitive decline) and mortality or risk of fragility [2, 3]. Symptoms related to anaemia can be significant, although not very specific, such as asthenia, which is often found but frequently multifactorial [4].

Anemia is defined as a reduction of haemoglobin levels. The threshold values defined by the World Health Organisation (WHO) in 1968 are still generally accepted: haemoglobin 13 g/dl for men and 12 g/dl for adult women; they are valid in the elderly. There is therefore no "senile anemia" and age should not be a limiting factor in the etiological diagnosis of anemia [5].

Anemia is common in people aged over 65 living in the community, with an estimated prevalence

of 11% in men and 10.2% in women. Over the age of 85, its prevalence exceeds 20% [6].

The etiologies of anemia in the elderly differ from those in the young only in terms of the pathologies and their frequency that are encountered with age, such as renal failure and myelodysplastic syndromes. In practice, the problem is more frequently that of the multifactorial anemias characteristic of the geriatric population (cancers with multiple bleeds, inflammatory syndrome, metastatic medullary invasion, haemolysis, for example). These situations require a rigorous diagnostic approach in the emergency department and then in hospital [7].

Despite this, 30% of anemias currently remain unexplained, most often due to insufficient investigation (particularly in the absence of a myelogram) [6]. The elderly are likely to increase in our countries. As a result, we will frequently be confronted with diseases affecting this population, particularly anemia. There are few data available in the subregion on the characteristics of anaemia in the elderly. Similarly, anemia in this age group remains largely unexplored.

We propose to do an overview of this pathology in elderly hospitalised in the internal medicine department of the Point "G" University Hospital to determine its epidemiological-clinical and etiological characteristics.

METHODS

It was a retrospective descriptive study conducted from January 2011 to December 2012 in the internal medicine department of the Point "G" University Hospital. We included all hospitalised patients aged 65 and over in the internal medicine department with anemia according to the WHO definition. Patients hospitalised outside the study period, non-hospitalised patients, subjects aged less than 65 years, elderly subjects with unusable records and all patients not followed up in the internal medicine department were not included. All patients in the study underwent an interview, a complete physical examination and additional tests.

The patients were divided into two groups:

- A first group (group 1) representing all the elderly patients hospitalized during the study period and who presented anemia on the NFS on admission, in which the sociodemographic, clinical, biological and therapeutic characteristics will be studied.
- A second group (group 2) consisting only of those in whom anaemia had been diagnosed. A diagnosis of anaemia was made when the blood count showed a haemoglobin level of <13g/dl in men and 12g/dl in women.

We have classified anaemia according to the following criteria:

*Mean corpuscular volume (MCV), which is used to define:

- Microcytic anaemia (MCV<80 fl)
- Macrocytic anaemia (MCV>80 fl)
- Normocytic anaemia (80fl<VGM<100fl).

*Mean corpuscular haemoglobin content (MCHC): (N: 27-32pg) is used to differentiate hypochromia (MCHC <27pg) from normochromia (MCHC ≥32pg).

*The mean corpuscular haemoglobin concentration (MCHC) is used to differentiate between hypochromia (MCHC <32%) and normochromia (MCHC≥32%).

*The reticulocyte count, which confirms:

- Central character with a reticulocyte count<120000/mm3: aregenerative anaemia.
- Peripheral character of the anaemia with a reticulocyte count > 120,000/mm3): regenerative anaemia.

Data were collected on a pre-established survey form from the records of patients hospitalised in the internal medicine department during the study period. Data were entered and analysed using Epi-info 3.5.1 software.

RESULTS

Among 852 patients hospitalized during the study period, 95 had anemia according to our inclusion criteria, i.e. a hospital prevalence of 11.15%. The geriatric population during the same period represented 199 patients. The frequency of anaemia in this population was 47.73% (95/199), with 63.2% (60/95) in men and 36.8% (35/95) in women, a M/F sex ratio where 1.71. The mean age of the patients was 73.39 ± 6.65 years. Clinically, weight loss, dyspnea and polypnea were the most common general, physical and functional signs, with 82.1% (78/95), 21.1% (20/95) and 56.5% (52/95) respectively. The mean haemoglobin level was 8.93 g/dl, with extremes of 3.1 and 12.5 g/dl in group 1. After investigation, normocytic normochromic anaemia was the predominant type of anaemia in 37.9% (11/29) of cases. Inflammatory anaemia was the main cause of anaemia in the elderly, accounting for 58.6% (17/29) of cases, followed by multifactorial anaemia in 20.7% (6/29) of patients. Renal insufficiency and unknown causes each accounted for 6.9% (2/29) of cases. Vitamin B12 and martial deficiencies each accounted for 3.4% (1/29) of cases.

DISCUSSION

We were confronted with certain difficulties which led to insufficiencies of the study. Anaemia was only investigated in 30.5% (29/95) of patients, which gives us an approximate idea of the etiologies. There

were various reasons for this, including anaemia not taken into account by the internist or doctor, complementary examinations not being feasible due to lack of technical facilities, and lack of financial resources for complementary examinations. Inflammatory anaemia was the predominant aetiology in our study, as no investigations were carried out in 69.47% of patients. Geriatric assessment was also lacking in the patient files due to a lack of geriatric culture. We used the WHO criteria to define the elderly patient, which is not the case in several studies in which the age limit defining the elderly subject was set at 70 years or more.

The prevalence of anemia in the geriatric population is high. In our study it was 47.73%. This figure is similar to those of Beyne [8] (47%), Roth [9] (41%) and Estivin [10] (54.6%).

The mean age of patients was 73.39 ±6.65, with extremes of 65 and 99 years. These values are lower than those of Petrosyan [11] with 79.7 years, Price [12] with 77.8 years, and Beyne [8] and Roth [9] with 85.8 and 89.5 years respectively. This difference can be explained by the fact that the studies by Price [12], Petrosyan [11], Beyne [8] and Roth [9] were conducted in countries where life expectancy is still higher than ours. Another explanation could be that the age limit defining the elderly was higher in these countries.

There was a male predominance in our study, with a M/F sex ratio of 1.71. Price [12] in his study found a male predominance with an M/F sex ratio of 5.54 (161/29), unlike Petrosyan [11] who found a female predominance with an M/F sex ratio of 0.9.

In our study we observed a mean haemoglobin level of 8.93 g/dl with extremes of 3.1 and 12.5 g/dl. These figures are much lower than those found by Price [12] and Chebbi [1] who respectively found mean haemoglobin levels of 11.2 ±1.1 g/dl with extremes of 6.4 and 12.9 g/dl and 7 ± 1.7 g/dl with extremes of 1.9 to 9.8 g/dl. Delays in admitting patients to hospital and late diagnosis may explain this difference. Another explanation in our context may be due to a failure to investigate many cases of anemia. This was described by Tenier [13] in his study carried out in an internal medicine department, which showed that half of elderly patients with anemia were not investigated. Even so, normocytic anaemia in elderly patients after a simple minimum assessment can be explained in 80% of cases [14].

In our study, normocytic normochromic anaemia was most frequent in group 2, in 37.9% of patients. Inflammatory anaemia was the most common cause in group 2 patients in our study, accounting for 58.6% of cases. In the literature, the etiologies are very varied. Petrosyan [11] found a predominance of inflammatory etiologies in 62.1% of cases, while Beyne [8] found a predominance of martial deficiency in 43% of cases.

Anemia of unexplained cause was found in only 6.9% (2 patients/29) of cases in our study. This low rate of unexplained anaemia was found by Petrosyan [11] in 8 of 95 patients. However, our figures are much lower than those of Price [12] who found anaemia of unexplained cause in 35% of cases. Price suggests that unexplained anaemia involves interrelated mechanisms including renal failure, inflammation, proliferative decline of haematopoietic stem cells and/or erythroid progenitor cells and early myelodysplastic syndrome.

CONCLUSION

Anaemia is still common in elderly hospital patients. Anemia of inflammatory origin dominates the etiologies. Anemia remains under-explored for a variety of reasons, including difficulties related to practitioners, technical facilities and financial resources. Systematic investigation of anaemia in elderly patients should be the rule, with an improvement in the technical facilities available.

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