

## Short Communication

### Autoimmune Hemolytic Anemia in Patients of Non Hodgkin's Lymphoma

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#### Abstract

The study was conducted to determine the frequency of autoimmune haemolytic anaemia in non-Hodgkin's lymphomas. A cross sectional study on 100 patients of Non-Hodgkin Lymphoma was conducted in Pathology department, KEMU, Lahore. The mean age among the patients was  $50.14 \pm 17.053$  years. The mean haemoglobin was  $10.73 \text{ g/dl} \pm 2.74$ . Out of 100, 88 patients had Coomb's Test negative and 12 patients had a positive result. Those having a positive coomb's test showed a higher retic count i.e.,  $5.05 \pm 2.37$ . The average bilirubin levels in all NHL patients were  $0.901 \text{ mg/dL}$ , with a substantially higher mean of  $2.15 \text{ mg/dL}$  among patients who tested positive for Coomb's. The LDH levels of those immensely high  $764.5 \pm 441$ . Post stratification chi square testing showed no significant relationship was found between autoimmune hemolytic anemia among NHL patients. Age and gender have no significant effect. However, disease stage can be a risk factor. Therefore, it is emphasized that all patients of NHL, regardless of age and gender, must be thoroughly investigated.

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**Keywords** | NHL, AHA, Coombs Test

#### Introduction

Non-Hodgkins Lymphoma (NHL) is more common in the developed world, with the highest incidence rates in the USA, Australia and New Zealand, and Europe, and the lowest in Eastern and South-Central Asia.<sup>1</sup> The median age at diagnosis is more than 60 years. In comparison to T-NHL, which contributes for just 10–15 percent of all NHL cases, B-NHL are much more common, accounting for around 80–85 percent of all NHL cases.<sup>2</sup> Age-specific incidence rates for both sexes in Pakistan show a rise in all age categories, particularly among the adolescent and the elderly (over 55 years). The course

of illness in NHL patients is frequently complicated by autoimmune events that primarily target blood cells. It is incorrect to assert that autoimmune is limited to the formed constituents of the blood, as nonhematologic autoimmunity is extremely rare but has been recorded. As a result of a lack of self-tolerance, the immune system reacts abnormally to autologous or allogeneic cells. IgG directed against RBCs or platelet antigens is the most common cause of haemolytic anemia in adults.<sup>3</sup> Some individuals with advanced NHL may have antibodies specific to RBCs that can be detected by an anti-globulin test, although only a small percentage of these patients develop AIHA when they do. There have been a few cases in which the malignant clone developed RBC-specific autoantibodies in individuals. Among there is a possibility of many causes of cytopenia in NHL (e.g. bone marrow failure, hypersplenism, chemotherapy,



#### Production and Hosting by KEMU

<https://doi.org/10.21649/akemu.v23i4.5138>

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sepsis, autoimmunity), a thorough set of investigations should be carried out to diagnose these patients. However, the highest risk is in those patients with advanced stage disease. It is thus imperative to exclude autoimmune cytopenia's in the work-up of any patient with NHL and cytopenia. Patients with NHL whose blood tests reveal the presence of AIHA are at greater risk of death. Lastly, once diagnosed in association with LPD, the clinicians must employ definitive chemotherapy to treat AIHA co existing with NHL.<sup>4</sup>

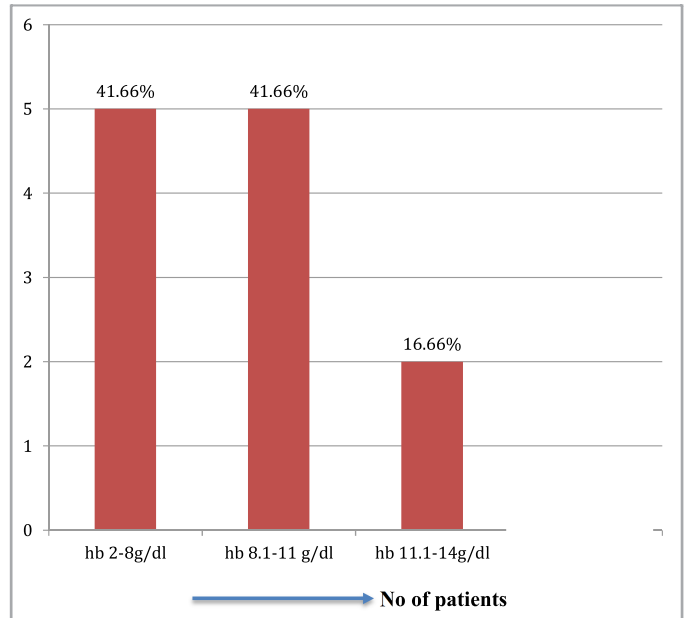
**Methods**

This Cross-sectional study was conducted in Pathology Department of King Edward Medical University from June 2019 to June 2020. A total of 100 patients of NHL were enrolled and tested. Patients who have received transfusion within last three month or with any known autoimmune disorders were excluded. The patients who have the previous history of use of any type of steroid based therapy or any kind of hemolytic disease, such patients were not included in the study. By doing so the selection bias was minimized. The clinical parameters including age, gender, Hemoglobin, retic count, bilirubin and LDH levels were recorded.

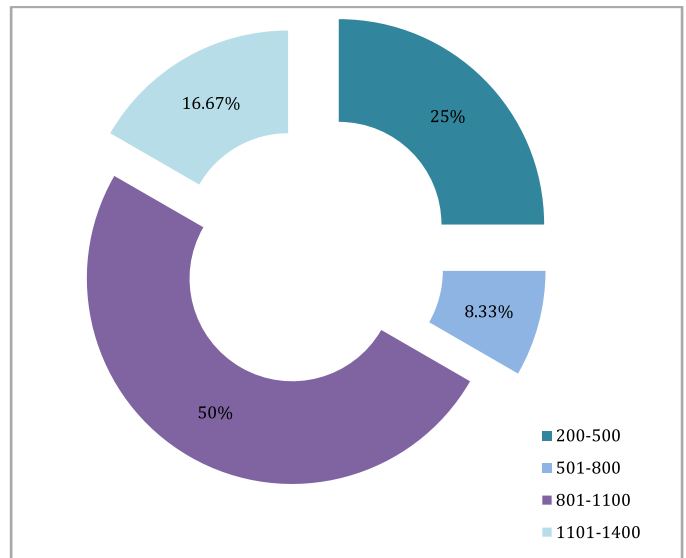
**Results**

The mean age among the patients is  $50.14 \pm 17.053$  years. The male to female ratio was 1.9:1. The mean hemoglobin of all NHL patients was  $10.73 \text{g/dl} \pm 2.74$ . Out of 100 patients, 88 patients (88.0%) had Coomb's Test negative, and 12 patients (12.0) had a positive result. Among 16 patients less than 30 years of age, all were tested negative for Coomb's showing no features of hemolysis. The remaining 84 patients were above 30 years of age out of which 72 % tested negative while 12% tested positive for coombs test showing clinical and laboratory features of hemolysis. Out of total 66 male participants, 59 % patients tested negative while 7% patients were tested positive for coombs test. Total females were 34 %, out of which 29 % tested negative and 5 % tested positive for coomb's test. The LDH levels of the patients having positive Coombs's test were immensely high i-e  $764.5 \pm 441$ . Post stratification chi square testing showed no significant relationship was found between autoimmune hemolytic anemia among NHL patients and any age group( $p=0.17$ ) and gender ( $p=0.550$ ).A whopping 13% of individuals in this study

had autoimmune haemolytic anaemia, according to the findings. Patients were categorized into three categories in this study. There were three groups of patients: those between the ages of 18 and 30, those aged 31 to 60, and those over the age of 60. Age and autoimmune anaemia were shown to have no significant correlation ( $p$  value = 0.017) in patients with NHL. The number of CLL problems does, however, rise with age, as demonstrated in research by Landgren.<sup>5</sup>



**Figure 1:** Hemoglobin Levels in Patients Of NHL Showing Autoimmune Hemolytic Anemia (Coomb's Positive)



**Figure 2:** Serum LDH Levels in Coomb's Positive Patients

## Discussion

In this study no significant relationship was found between gender (p value=0.550) and AHA in NHL patients. However, in other study by Landgren states that male population suffers more with autoimmune haemolytic anemia than females in CLL(NHL) patients. The study by Durani U showed more female patients suffer from complications of lymphomas.<sup>6</sup> Out of 100 NHL patients, 12 % of them had positive coombs test. Those less than 30 years of age were all coomb's negative. All of the positive patients were more than 30 years of age. Of these positive patients, 12% were males and 5% were females. In an international study by Holderied TA it was seen that the incidence of AIHA with positive coomb's test was significant in patients of lymphoma.<sup>7</sup>

## Conclusion

In non-lymphoma Hodgkin's patients, one in every twelve patients develops autoimmune hemolytic anemia, according to this study. Age and gender have no significant effect on the occurrence of this complication of NHL. However, disease stage can be a risk factor. A larger sample size can help to establish the relationship of AHA with stage of the disease. Therefore, it is emphasized that all patients of NHL, regardless of age and gender, must be thoroughly investigated for development of AHA as it is an important complication associated with NHL.

**Conflict of Interest:** The authors declare no conflict of interest.

**Funding Source:** None

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