



# Normal Lymphocyte Count in a Patient with Covid-19 Turns Out to be CLL

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## Introduction

The outbreak of the novel coronavirus disease 2019 (Covid-19) has led to numerous unusual disease presentations.

We describe a case of a patient who presented with normal leukocyte and lymphocyte counts but with resolution of his Covid-19 infection over the period of 1 week developed progressive lymphocytosis.

The patient was ultimately diagnosed with chronic lymphocytic leukemia (CLL).

## Diagnostic Criteria

CLL is a chronic B-cell lymphoproliferative neoplasm and is the most common type of leukemia in the United States.

Characterized by an accumulation of nonfunctional clonal mature B-cell lymphocytes.

Diagnosis of CLL requires at least  $5 \times 10^9$  B-lymphocytes/L within the peripheral blood with clonality confirmed by flow cytometry.

Flow cytometry can show expression of T-cell antigen CD5, as well as B-cell antigens CD19, CD20, and CD23.

## Initial Course

Presented with ten days of shortness of breath and found to be in acute hypoxic respiratory failure. On initial CT scan, he was found to have severe ground glass opacities in addition to mediastinal lymphadenopathy which was thought to be reactive. Tested + for Covid-19

Treated with five days of levofloxacin and intravenous methylprednisolone was initiated which was transitioned to a prolonged prednisone taper. Also enrolled in Remdesivir trial.

Although he initially required high flow nasal cannula, he was able to be weaned to 6L at discharge.

## Hematological Course

On presentation, patient had a WBC count of 12.2 with an absolute neutrophil count of 8.8 and absolute lymphocyte count of 3.3.

As the patient's respiratory status and clinical parameters began to improve, his leukocyte count continued to increase with peak leukocyte count of 43 on day 12 of hospitalization.

Notably, after having neutrophil predominance on admission, there was a significant lymphocytosis starting on day 3 of hospitalization.

Flow cytometry confirmed diagnosis of CLL on day 13.

## Discussion/Conclusions

CLL is a malignancy of CD5-positive B cells that is defined by lymphocytosis occurring in the blood, bone marrow, and lymphoid tissue.

Early literature in both China and the United States showed a significant prevalence of lymphopenia in Covid-19 patients. Lymphopenia also noted to be a prognostic indicator.

In our case, the lymphopenic effect of Covid-19 played a role in delaying the diagnosis of CLL.

Our case highlights the importance of high ACE receptors on mature lymphocytes causing direct viral activation and subsequent lymphopenia.

Also highlights the importance of earlier ordering of flow cytometry with even mild clinical suspicion in a patient with a normal lymphocyte count and positive Covid-19.

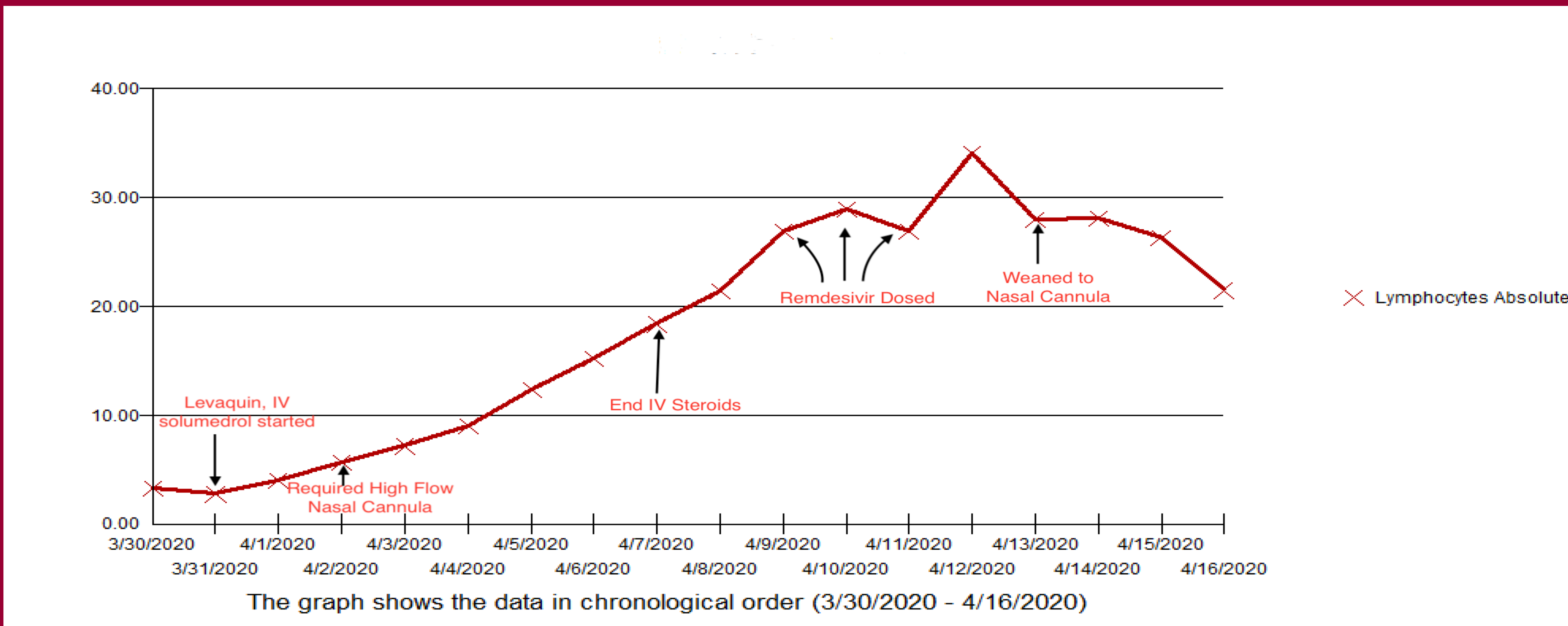


Figure 1 Absolute Lymphocyte Count Throughout Hospitalization

## References

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