



Fever during the COVID-19 Pandemic: Chronic Myeloid Leukemia

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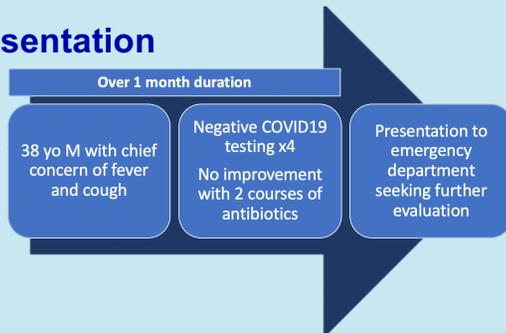
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Introduction

Diagnostic errors are one of the leading contributors of harm in health care¹. Throughout the COVID-19 pandemic there has been a shift in the weight towards potential infection in the diagnostics heuristics for fever². However, fever is a non-specific symptom involved in several diseases including hematological malignancies.

Case Presentation



Emergency room workup revealed white blood cell count of 130.7 K/uL with 2-3% circulating blasts, hemoglobin of 9.9 g/dl, platelets of 124 K/uL, and complete metabolic panel within normal limits. The diagnosis of acute leukemia was considered, and he was transferred to our medical center. Further evaluation revealed 10-pound weight loss over 2 months, night sweats, chills, decreased appetite, splenomegaly, and lactate dehydrogenase of 406 U/L. Bone marrow biopsy and flow cytometry were conducted and revealed BCR-ABL positive-chronic myeloid leukemia (CML) in accelerated phase (11% blasts). Sokal Index for CML was calculated to be high risk at 2.4. The patient was started on dasatinib, as well as celecoxib, allopurinol and acyclovir. He was discharged home on day nine with twice weekly labs and follow-up appointment with oncology in four weeks.

Discussion

This case highlights the potential of premature closure of presumptive diagnosis(es), in which anchoring can impede a provider from exploring other etiologies. For over a month, this patient was repeatedly tested for COVID-19, given antibiotics without any known source of infection, and without further work-up being completed. Thus, demonstrating the need for recognition of diagnostic biases and crafting an approach to better reassess and investigate other potential diagnoses.

CML is a hematologic malignancy driven by the presence of a BCR-ABL1 fusion protein within cells leading to a constitutive activity of tyrosine kinase driving leukemia clone expansion. Initial workup for suspected leukemia begins with a complete blood cell count with differential and peripheral blood smear. This is followed by bone marrow aspirate and biopsy for morphology, cytogenetics (Philadelphia chromosome), and quantitative real-time polymerase chain reaction for BCR-ABL1. Fluorescence in situ hybridization can be used if cytogenetic evaluation is not possible. Due to potential reactivation risk from medical therapy, hepatitis B panel should be completed. Flow cytometry can be considered in patients with concern for advanced phase CML to determine cell lineage.

Overall, CML requires a thorough diagnostic work-up to accurately classify the disease and management course. Although initial presentation can be non-specific, it is important to consider hematological diseases in the differential for patients presenting with intermittent fever.

References

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