Enhancing Hospital at Home Care by Effectively Utilizing Tele-consults: A case of Severe Neutropenia Managed in the Home

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INTRODUCTION

- The Hospital at Home (HaH) service is continuously evolving to individualize patient care according to each patient's specific needs
- The objectives of this case are to:
  - Highlight one patient example of the varied complications that can be managed on the HaH service without hospital escalation
  - Illustrate how subspecialty tele-consults can be utilized to effectively coordinate acute and complex care in the home

CASE DESCRIPTION

- A 51-year-old woman with cirrhosis due to autoimmune hepatitis, previously treated with azathioprine and now on a prolonged steroid course due to azathioprine-induced pneumonitis, was admitted to the hospital with bilateral leg swelling and abdominal distension, consistent with decompensated cirrhosis
- Diuresis was initiated and the patient was transferred to HaH for continued care
- Physical exam was notable for a distended abdomen and 2+ bilateral lower extremity edema
- Complete blood count was notable for mild leukopenia (WBC 3x10^9/L), chronic normocytic anemia (Hgb 9.6 g/dL), and chronic thrombocytopenia (platelets 26x10^9/L). Comprehensive metabolic panel revealed only a mildly elevated alkaline phosphatase (157 U/L)
- Medications included:
  - Furosemide and spironolactone for diuresis
  - Prednisone for azathioprine-induced pneumonitis
  - Pantoprazole for gastrointestinal prophylaxis
  - Trimethoprim-sulfamethoxazole (TMP-SMX) for pneumocystis pneumonia prophylaxis

CASE DESCRIPTION

- Laboratory data revealed a downward trend in the white blood cell count (WBC) and the absolute neutrophil count (ANC) over the first week (Table 1)

HaH Day Number	WBC (cells x 10^9/L)	ANC (cells x 10^9/L)
1	3.0	2.26
3	3.9	--
4	2.8	--
6	2.4	0.54
7	1.5	0.09
8	1.3	0.00

Table 1. Trend in WBC and ANC over time

- TMP-SMX was discontinued and a tele-consult was coordinated with the inpatient hematology team
- An extensive workup was performed while the patient remained at home, including a peripheral blood smear, hepatitis serologies, HIV, CMV, EBV, parvovirus, iron studies, B12, folate, haptoglobin, LDH, reticulocyte count, Coombs test, and flow cytometry
- Workup returned unremarkable other than an elevated CMV IgM to 107 AU/mL (positive > 34.9 AU/mL), but with a low PCR level (<34.5 IU/mL). The possibility of a resolving CMV infection was considered, albeit thought to be less likely than TMP-SMX induced myelosuppression
- The patient's neutropenia resolved on day number 14 of HaH hospitalization, 7 days after TMP-SMX discontinuation

DISCUSSION

- TMP-SMX induced agranulocytosis is a rare but potentially life threatening adverse effect that requires a high level of vigilance for detection
- The mainstay of treatment is drug discontinuation, although adjuvant granulocyte-colony stimulating factor is sometimes needed
- Our patient was successfully managed in the home during this unforeseen complication through leveraging subspecialist expertise via telemedicine, without the need for hospital escalation
- This experience prompted us to explore the expansion of our telemedicine consult services to better support the growing complexity of our admitted patients

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