CLINICAL CHARACTERISTICS AND OUTCOMES OF SECONDARY HLH: A FIVE-YEAR SINGLE-CENTER EXPERIENCE

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Introduction

Secondary hemophagocytic lymphohistiocytosis (HLH) is a life-threatening hyperinflammatory syndrome marked by dysregulated activation of NK cells, cytotoxic CD8+ T- cells, and macrophages. Triggers include malignancies, infections, and autoimmune disorders.

Prompt diagnosis and treatment are critical to reduce morbidity and mortality.

Aim

This review aimed to evaluate **the characteristics and outcomes** of **secondary HLH patients over a five-year period.**

Methods

We conducted a **retrospective** cohort study at an 897-bed academic public trust hospital, reviewing electronic medical records from January 2020 to December 2025, with IRB approval.

Results

Four adult patients were diagnosed with secondary HLH. **All were Caucasian males, with a median age of 65.6 years.** Comorbidities included **coronary artery disease (75%), hypertension (50%), and hyperlipidemia (50%),** while one patient had no prior conditions. **HLH was associated with malignancy in three patients (75%).**

Table 1. Baseline Characteristics

	Age	Sex	Race	Comorbidities	Oncological history	Chief complaint on admission
Patient 1	65	M	Caucasian	CAD, HTN, PAD, tobacco and alcohol use disorder	Metastatic small cell lung cancer to the liver	Hemoptysis
Patient 2	71	M	Caucasian	CAD, HTN, HLP, hypothyroidism	Stage IV melanoma and prostate cancer	Chest pain and shortness of breath
Patient 3	66	M	Caucasian	CAD	Large granular T-cell lymphocytic leukemia	Fevers and chills
Patient 4	44	M	Caucasian	None	None	Fevers and chills

Key: M: Male; CAD: Coronary artery disease; HTN: Hypertension; PAD: Peripheral artery disease; HLP: Hyperlipidemia

Presenting symptoms included fevers/chills (50%), chest pain and shortness of breath (25%), and hemoptysis (25%).

The median admission temperature was 100.0°F, and the median HScore was 270.

Imaging revealed splenomegaly in 75% and hepatomegaly in 25%.

Laboratory values from admission to diagnosis showed **progressive inflammatory trends**: cytopenias increased from a median of 1.5 to 2.5; ferritin from 9,532 to 12,242 ng/mL; triglycerides from 227 to 273 mg/dL; AST from 145.5 to 206 U/L; and fibrinogen from 278.5 to 578 mg/dL.

Table 2. Laboratory values at HLH diagnosis

	WBC (10^3/µL)	Hb (g/dL)	Plt (10^3/µL)	Ferritin (ng/mL)	Trig (mg/dL)	Fibrinogen (mg/dL)	AST (U/L)	IL2Ra/ CD25 (pg/mL)
Patient 1	2.1	8.7	12	16,230	175	632	508	7,048
Patient 2	15.3	6.6	41	8,254	205	578	9	7,152
Patient 3	1.0	8.5	23	40,000	404	95	79	69, 350
Patient 4	3.5	10.2	160	5,903	341	398	212	35.500

Key: WBC: White Blood Cell; Hb: Hemoglobin; Plt: Platelets; Trig: Triglycerides; AST: Aspartate Aminotransferase; IL2Ra: Interleukin 2 Receptor alpha

Bone marrow biopsy confirmed hemophagocytosis in two patients (50%); one was newly diagnosed with CMML, and one did not undergo biopsy**. Three patients (75%) required ICU admission**, including one who required intubation.

HLH-directed therapy was administered in three cases (dexamethasone for all; etoposide in one); one patient received no treatment. Discharge outcomes included **hospice (50%), rehabilitation (25%), and home (25%).**

Conclusion

This study highlights the diagnostic challenges and clinical severity of secondary HLH. **In this small cohort, malignancy was the predominant trigger.**

The need for ICU-level care and high rate of hospice transition underscore the urgency for early recognition and the development of standardized treatment approaches in adult HLH.

Contact

References

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