SWISS ONCOLOGY & HEMATOLOGY CONGRESS

Are there non-hematological causes of hyperleukocytosis? Hyperleucocytosis cases in a tertiary university hospital over 10 years

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Introduction

Hyperleukocytosis (HL) is defined by an increase in leukocytes > 100×10^9 /L. Symptomatic HL is often associated with increased morbidity and mortality and is considered a medical emergency. Our aim was to primarily assess the main causes of HL, particularly if there are non-hematological causes. Then, we attempted to evaluate the use of leukocytapheresis (LCAP) and outcomes of patients with HL.

Methods

We searched the hospital database for adult patients with HL between 2013-2023. Patients with at least one episode of HL and no written objection to the general consent were further evaluated. We collected data for age, sex, leukocyte count, underlying cause of HL, use of LCAP and early mortality (death within 1 month since HL). We assessed possible predictors for LCAP by means of logistic regression models. Calculated odds ratio (OR) were adjusted for sex, age and maximal leucocytes.

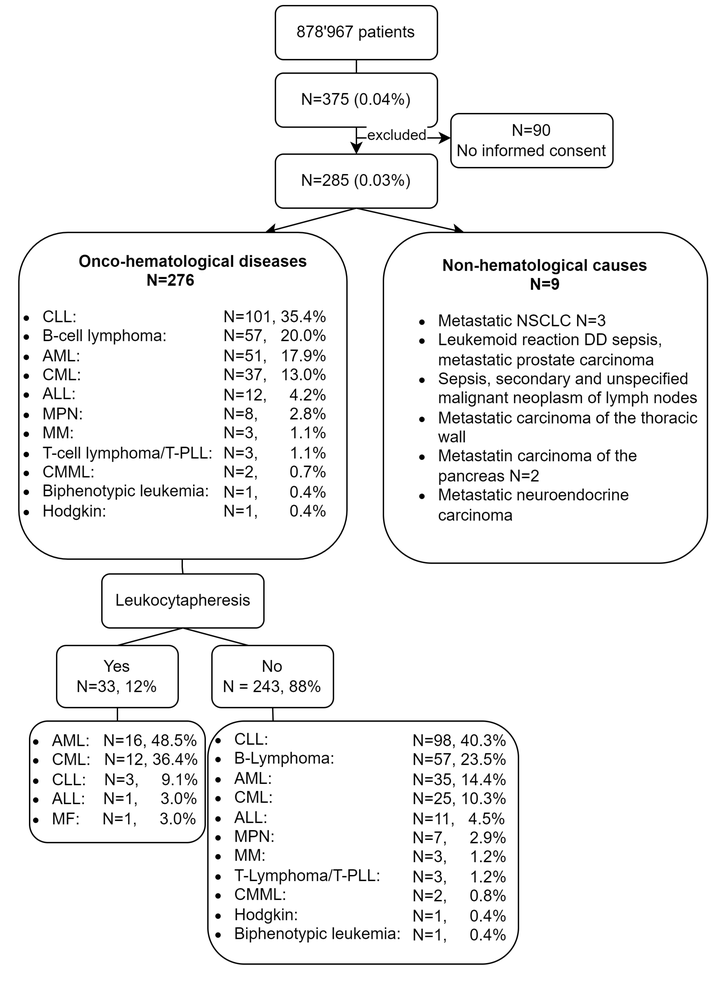
Results

- We retrospectively analyzed 878'967 adult patients and identified 375 (0.04%) with HL.
- 285 did not object to general consent and comprised the population evaluated.
- 276/285 (97%) patients had an underlying hematological disease (Figure 1)
  - Median age 66.8 years (range 18.4-93.6), 32% female
- 9 HL patients had a non-hematological underlying cause (Figure 1)
  - Median age 61.7 years (range 53-81), 22% female
  - Median leucocyte count was 103.3×109 /L (range 100-161)
- Leukocytapheresis
  - 33/285 (11.6%) patients underwent LCAP
  - Main indication was respiratory symptoms in 21/33 (63.6%), followed by ophthalmological and neurological symptoms
  - No patient with a non-hematological cause underwent LCAP
  - Female sex was significantly associated with LCAP (adjOR 2.6, 95%CI 1.23-5.62) for the whole population and (adjOR 4.25, 95%CI 1.04-17.3) for AML
  - Early mortality was similar in AML patients with HL treated with LCAP 6/15 (40%) versus no LCAP 13/30 (43%)

Conclusions

- Even in a tertiary hospital the presence of HL is an unusual event.
- The causes, as expected, are mainly hematological
- Non-hematological causes however exist and should not be neglected, most were paraneoplastic.
- The management of HL is not well standardized. The relatively high number of LCAP observed may be biased by the availability of this method at our institution.

Figure 1: Stepwise process evaluating laboratory and clinical data with HL



Abbreviations: ALL: acute lymphoblastic leukemia, AML: acute myeloid leukemia, CLL: chronic leucocytic leukemia, CML: chronic myeloid leukemia, , CMML: chronic myelomonocytic leukemia**,** MM: multiples myelom, MPN: myeloproliferative neoplasm, NSCLC: non small cell lung cancer, PLL: prolymphocytic leukemia

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