

EPIDEMIOLOGICAL STUDIES IN DE NOVO AND SECONDARY ACUTE LEUKEMIA

Akademisk avhandling

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av

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Avhandlingen baseras på följande delarbeten:

- I. Punab M, Palk K, Varik M, Laane E, Everaus H, Holmberg E, **Hulegårdh E**, Wennström L, Safai-Kutti S, Stockelberg D, Kutti J. "Sequential population-based studies over 25 years on the incidence and survival of acute de novo leukemias in Estonia and in a well-defined region of western Sweden during 1982-2006: a survey of patients aged ≥ 65 years". *Med Oncol.* 2013 Mar;30(1):487
- II. **Hulegårdh E**, Punab M, Holmberg E, Palk K, Laane E, Everaus H, Wennström L, Stockelberg D. "Acute de novo Leukemia in Estonia and Western Sweden 1982-2006: Positive Trend in the Survival of Acute Leukemia over 25 Years." *Acta Haematol.* 2016;136(3):167-73.
- III. **Hulegårdh* E**, Nilsson* C, Lazarevic V, Garelius H, Antunovic P, Rangert Derolf Å, Möllgård L, Uggla B, Wennström L, Wahlin A, Höglund M, Juliusson G, Stockelberg D, Lehmann S. "Characterization and prognostic features of secondary acute myeloid leukemia in a population-based setting: a report from the Swedish Acute Leukemia Registry". *Am J Hematol.* 2015 Mar;90(3):208-14. *) equally contributing.
- IV. Nilsson C, **Hulegårdh E**, Garelius H, Möllgård L, Brune M, Wahlin A, Lenhoff S, Frödin U, Remberger M, Höglund M, Juliusson G, Stockelberg D, Lehmann S. "Secondary acute myeloid leukemia and the role of allogeneic stem cell transplantation in a population-based setting". Submitted for publication.

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Abstract

Background

Acute leukemia (AL) is a rare blood cancer with poor prognosis in adult patients. Socioeconomic factors are known to impact cancer outcomes, but have not been adequately examined among adult AL patients. Acute myeloid leukemia (AML) secondary to another myeloid malignancy, irradiation or chemotherapy (s-AML), constitutes a quarter of AML patients and is considered to confer a poor prognosis. Still, population based characterization of s-AML is scarce, and the role of allogeneic hematopoietic cell transplantation (a-HSCT) in s-AML is poorly studied.

The main aims of this thesis were:

- i) Investigate the incidence and survival of adult AL in regions with major socioeconomic differences (Estonia and Western Sweden) during a quarter of a century.
- ii) To in depth explore s-AML regarding incidence and prognostic factors.
- iii) Elucidate role for stem cell transplantation in s-AML in a large population-based setting.

Method

We have analysed all adult patients in the Swedish Acute Leukemia Registry, and comparable Estonian data.

Results and conclusion

The conclusion is that during 1982-2006, relative survival for Estonian elderly AL patients has gradually improved and almost equals Western Sweden. However, few patients live after five years. For AL patients under 65, relative five-year survival has increased from almost zero to approximately 20% for Estonian, and from 20 to 55% for Swedish patients during our 25-years study. We conclude that socioeconomic differences have a major impact on survival for AL, especially in younger patients.

S-AML constitutes approximately 25% in a large population-based setting, and has a striking impact on survival in younger AML patients (<65 years), whereas less prognostic value among the elderly.

In a nationwide population-based Swedish setting, there is virtually no long-term survival in patients with s-AML without hematopoietic transplantation. A-HSCT was superior to conventional chemotherapy in secondary AML patients, and should be considered for all eligible patients at diagnosis.

Keywords: Acute leukemia, ALL, AML, adult, Secondary acute leukemia, MDS, MPN.