

# Population-based studies on acute leukemias - lessons from the Swedish Adult Acute Leukemia Registry

AKADEMISK AVHANDLING

som för avläggande av medicine doktorsexamen  
vid Sahlgrenska Akademin, Göteborgs Universitet  
kommer att offentligen försvaras i Sahlgrenska Aula, Blå stråket 5,  
Sahlgrenska Universitetssjukhuset/Sahlgrenska, Göteborg,  
fredagen den 30 september 2011 kl. 09.00, av

Lovisa Vennström

Fakultetsopponent:  
Docent Hans Hägglund, Karolinska Institutet, Stockholm

Avhandlingen baseras på följande delarbeten:

- I. **Wennström L**, Juntikka EL, Safai-Kutti S, Stockelberg D, Holmberg E, Luik E, Palk K, Everaus H, Varik M, Aareleid T, Kutti J. The incidence and survival of acute de novo leukemias in Estonia and in a well-defined region of western Sweden during 1982-1996: a survey of patients aged 16-64 years. *Leuk Lymphoma* 2004; 45:915-21
- II. Luik E, Palk K, Everaus H, Varik M, Aareleid T, **Wennström L**, Juntikka EL, Safai-Kutti S, Stockelberg D, Holmberg E, Kutti J. The incidence and survival of acute de novo leukemias in Estonia and in a well-defined region of western Sweden during 1982-1996: a survey of patients aged  $\geq 65$  years. *J Intern Med* 2004; 256:79-85
- III. Palk K, Luik E, Varik M, Viigimaa I, Vaht K, Everaus H, **Wennström L**, Stockelberg D, Safai-Kutti S, Holmberg E, Kutti J. The incidence and survival of acute de novo leukemias in Estonia and in a well-defined region of western Sweden during 1997-2001: a survey of patients aged  $\geq 65$  years. *Cancer Epidemiol* 2010; 34:24-8
- IV. **Wennström L**, Stockelberg D, Safai-Kutti S, Holmberg E, Palk K, Luik E, Varik M, Viigimaa I, Vaht K, Everaus H, Kutti J. The incidence and survival of acute de novo leukemias in Estonia and in a well-defined region of western Sweden during 1997-2001: a survey of patients aged 16-64 years. *Acta Haematol* 2011;126:176-185[Epub ahead of print]
- V. Lehmann S, Ravn A, Carlsson L, Antunovic P, Deneberg S, Möllgård L, Rangert Derolf Å, Stockelberg D, Tidefelt U, Wahlin A, **Wennström L**, Höglund M, Juliusson G. Continuing high early death rate in acute promyelocytic leukemia: A population-based report from the Swedish Adult Acute Leukemia Registry. *Leukemia* 2011;25:1128-34
- VI. **Wennström L**†, Edslev PW†, Abrahamsson J, Nørgaard JM, Fløisand Y, Forestier E, Gustafsson G, Heldrup J, Hovi L, Jahnukainen K, Jonsson OG, Lausen B, Palle J, Zeller B, Holmberg E, Juliusson G, Stockelberg D, Hasle H.(† equal contribution) Acute Myeloid Leukemia in Adolescents and Young Adults in the Nordic Countries - Outcome According to Pediatric and Adult Treatment Protocols. *In manuscript*



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# Population-based studies on acute leukemias - lessons from the Swedish Adult Acute Leukemia Registry

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## Abstract:

Acute leukemia (AL) is a rare, potentially curable, aggressive neoplasm of hematopoietic origin. AL is a heterogeneous disease and is further subdivided according to clinical and biological features.

The aims were to investigate: i) the incidence and survival of adult AL in regions with socioeconomic differences, ii) the outcome of acute promyelocytic leukemia (APL) with particular emphasis on the course of disease during the first weeks of diagnosis, iii) the disease characteristics and survival in patients aged 10-30 years, with acute myeloid leukemia (AML).

We have investigated these issues in population-based materials; the first two studies were based on data from the Swedish Cancer Registry and the other four studies were based on data from the Swedish Adult Acute Leukemia Registry (SAALR). Comparisons were made with Estonia on incidence and survival of AL and with the Nordic Society for Paediatric Haematology and Oncology (NOPHO) and adult registries in Denmark and Norway for young AML patients.

The incidence of *de novo* AL was higher in western Sweden than in Estonia for patients aged  $\geq 65$  years. The 5-year relative survival for AL in patients aged 16-64 years was better in western Sweden than in Estonia and there was a significant improvement in outcome in western Sweden during 1982-1996. The differences in survival between the regions had decreased during the period 1997-2001; a dramatical improvement of survival was seen in Estonia, while no further improvement was recorded in western Sweden.

In a population-based study of APL, 29% of patients died within 30 days from diagnosis, 41% due to hemorrhage. The early mortality was higher than described in randomized trials.

There were no differences in survival for young AML patients whether treated according to pediatric or adult treatment protocols. Age was not found to be an independent prognostic marker for outcome.

Studies from population-based materials provide real world data, an important complement to data from randomized trials. Observational studies from population-based registries with high coverage can improve the epidemiological knowledge and can also describe unknown problems that need further investigation in randomized trials.

**Key words:** Acute leukemia, population-based, incidence, survival, acute myeloid leukemia, acute lymphoblastic leukemia, acute promyelocytic leukemia, outcome, early death

ISBN 978-91-628-8327-0