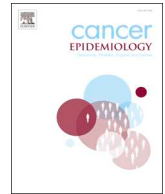




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## Trends of incidence and survival of patients with chronic myelomonocytic leukemia between 1999 and 2014: A comparison between Swiss and American population-based cancer registries

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## ARTICLE INFO

## Keywords:

Chronic myelomonocytic leukemia  
Population-based cancer registries  
Survival  
Incidence  
Switzerland  
SEER  
HMA

## ABSTRACT

**Background:** Chronic myelomonocytic leukemia (CMML) is a rare hematopoietic malignancy. Treatment with hypomethylating agents (HMA) was introduced between 2004 and 2006 but its impact on population-based survival remains controversial. The aim of this study was to investigate epidemiological characteristics and survival before and after introduction of HMA treatment.

**Methods:** We performed a population-based analysis of CMML cases reported to the *Cantonal Cancer Registries* in Switzerland (SWISS) and the Surveillance, Epidemiology, and End Results (SEER) Program from the United States for 1999–2006 (before HMA) and 2007–2014 (after HMA). Time trends were compared for these two time periods.

**Results:** 423 and 4144 new CMML cases were reported to the SWISS and SEER registries, respectively. We observed an increasing proportion of older patients  $\geq 75$  years in the SWISS (50.3%–62.3%) compared to a decreasing one in the SEER population (59.1%–55.1%). Age standardized incidence-rates were similar and remained stable in both countries (0.32–0.38 per 100'000 py). Relative survival (RS) improved significantly in the SEER (3 years 27%–37%; 5 years 19%–23%;  $p < 0.001$  for both) but remained stable in the SWISS population (3 years 48% to 40%; 5 years 34% to 26%; n.s. for both).

**Conclusions:** With the exception of opposing age-trends, epidemiologic characteristics are similar in both countries and comparable to other population-based registries. RS remains poor and different time trends of population-based survival cannot be faithfully explained by HMA but most likely by changes in diagnostic accuracy within prognostically distinct age-groups.

**Abbreviations:** AML, acute myeloid leukemia; allo HSCT, allogenic hematopoietic stem cell transplantation; ASR, age-standardized incidence-rate; AZA, 5-Azacitidine; CC, conventional care; CI, confidence interval; CCR, cantonal cancer registries; CMML, chronic myelomonocytic leukemia; CIR, crude incidence-rate; DEC, decitabine; ESA, erythropoiesis stimulating agents; FDA, food and drug administration; HMA, hypomethylating agents; MD-CMML, MDS-type CMML; MDS, myelodysplastic syndromes; MP-CMML, MPN-type CMML; MPN, myeloproliferative neoplasms; NICER, National Institute for Epidemiology and Cancer Registration; OS, observed survival; py, person-years; RS, relative survival; SC, supportive care; SEER, surveillance, epidemiology, and end results program; SFSO, Swiss Federal Statistics Office; SWISS, cantonal cancer registries in Switzerland

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<https://doi.org/10.1016/j.canep.2019.01.003>

Received 15 November 2018; Received in revised form 31 December 2018; Accepted 4 January 2019

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