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THE LOSS OF LIFE EXPECTANCY IN PATIENTS WITH CHRONIC MYELOID LEUKEMIA: A POPULATION-BASED STUDY IN THE NETHERLANDS, 1989-2018

Topic: 08. Chronic myeloid leukemia - Clinical

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Background:

The treatment of chronic myeloid leukemia (CML) was transformed around the early-2000s with the advent of the first-generation BCR-ABL tyrosine kinase inhibitor (TKI) imatinib. This seminal milestone, along with the introduction of subsequent generations of BCR-ABL TKIs, markedly improved the population-level survival of CML patients. The overall 5-year relative survival rate (RSR) of CML patients in the TKI era is around 80%. While the RSR has an abiding history in population-based cancer research, it does not capture the magnitude of a cancer diagnosis on the life expectancy of cancer patients. At present, only one study assessed trends in CML patients' life expectancy in Sweden during 1973-2013 (Bower et al. *J Clin Oncol* 34, 2016).

Aims:

To complement and extend this Swedish study, we assessed how the life expectancy and loss of life expectancy (LOLE) have evolved among CML patients diagnosed in the Netherlands during 1989-2018. In addition to the Swedish study, we estimated the 5-year conditional LOLE to assess time trends in the average number of life-years lost among CML patients who survived five years post-diagnosis.

Methods:

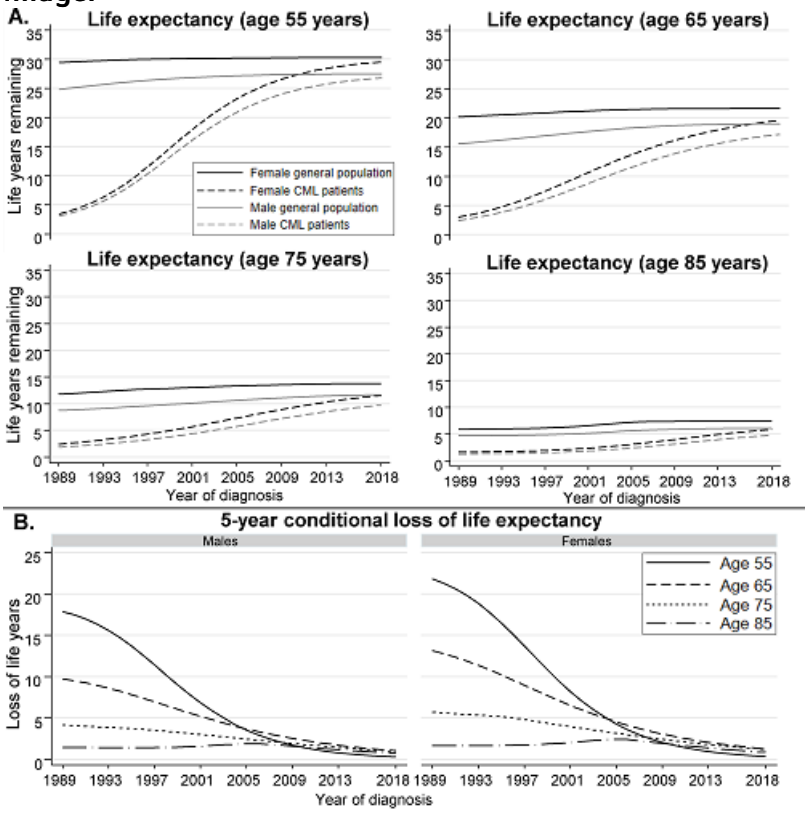
We identified 3,353 CML patients aged ≥50 years and diagnosed between 1989-2018—with survival follow-up through December 31, 2019—from the Netherlands Cancer Registry. The age selection was chosen to align with the Swedish study. Flexible parametric relative survival models were used to estimate the LOLE that quantifies the difference between the life expectancy of patients and the general population, of which the latter is matched to the patients by age, sex, and calendar year. The LOLE reflects the average number of life-years lost due to a cancer diagnosis. Also, the 5-year conditional LOLE was estimated, a concept that portrays the patients' LOLE after having survived five years post-diagnosis. The survival measures were presented by year of diagnosis for four ages at diagnosis (i.e. 55, 65, 75, and 85 years), stratified by sex.

Results:

The life expectancy of CML patients increased between 1989 and 2018, irrespective of age and sex, especially

among patients aged 55 and 65 years (Figure 1A). Consequently, there was a marked decrease in the LOLE, particularly among younger patients since younger individuals have more remaining life-years than older individuals (Figure 1A). For example, a 55-year-old male patient diagnosed in 1990 loses, on average, 21.5 (95% CI: 20.7; 22.3) life-years, whereas a 55-year-old male patient diagnosed in 2018 on average loses 0.7 (95% CI: -0.1; 1.5) life-years. The corresponding estimates for an 85-year-old male patient were 3.4 (95% CI: 3.2; 3.7) and 1.3 (95% CI: 0.8; 1.9) life years, respectively. While the LOLE was low among CML patients diagnosed in 2018, small excess mortality prevailed for patients aged 65, 75, and 85 years. Encouragingly enough, as of 2010, the life expectancy of CML patients who survived five years post-diagnosis came close to the general population's life expectancy, regardless of age (Figure 1B).

Image:



Summary/Conclusion: The life expectancy of CML patients improved over time, particularly among younger patients between the 1990s and mid-late-2000s. The most reassuring finding was that the life expectancy of CML patients across all age groups ultimately approached that of the general population. This finding among contemporary diagnosed patients can essentially be attributed to the introduction of several TKIs across various therapy lines. Collectively, CML patients can look forward to a near-normal life expectancy in an era with modern approaches to manage CML.

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