
Chinmay Jani1, Harpreet Singh2, Omar Al Omari1, Georgina Hanbury3, Arjun Kelaiya4, Joseph Shalhoub5, Dominic Marshall6, Lisa Weissmann7, Justin D Salciccioli8

Background
• Leukemia is the tenth most common cause of cancer related deaths.
• In 2018, there were a total of 437,000 estimated new cases and 309,000 deaths of leukemia worldwide.
• Objective: To observe the trends in mortality, incidence and disability-adjusted life years (DALYs) from all types of leukemia between 1990-2019 in European Union (EU) 15+ nations.

Methods
• We extracted the data from the Global Burden of Disease Study database.
• International Classification of Diseases versions 10 and 9 were used.
• Age-standardized incidence rates (ASIR), age-standardized mortality rates (ASMR), and DALYs were extracted for individual EU15+ countries per sex for each of the years 1990-2019, inclusive, and mortality-to-incidence indices (MII) were computed.
• All indices were reported per 100,000 population.
• Joinpoint analysis was carried out to observe the trends

Results
• ASIRs increased in 17/19 countries for males and 14/19 countries for females.
• The largest increase was in Germany (+56.4%) for males, and in Austria for females (+48.8%).
• All countries observed decreasing ASMRs for females and males except in Netherlands (+1.9% males).
• The greatest decreases were seen in Denmark for both males (-37.4%) and females (-38.9%).
• For both sexes, the MIRs decreased in all countries.
• The largest reductions were found in Greece for males (-51.1%) and females (-54.7%).
• DALYs were decreased in all the countries for both genders.
• Denmark had the highest decreases for both males (-49.3%) and females (-50.1%).

Conclusion
Although incidence of leukemia is increasing in the majority of EU15+ countries, mortality, MIR as well as DALYs have shown a downwards trend. Possible explanations for the increases in incidence could relate to ageing populations, changes in leukemia diagnosis criteria (lowering the blast count for acute myeloblastic leukemia) in 2001, and increases in chemoradiation-related leukemias. ASMRs, MIRs and DALYs have consistently decreased possibly reflecting effective new treatments modalities esp for CLL.

Corresponding author: Chinmay Jani, MD. Email: ctjani1494@gmail.com
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