Trends and Burden of Acute Lymphoid Leukemia Among Youth under 20 Years Old in G20 Countries (1990-2021): Insights From the Global Burden of Disease Study 2021

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Background

Acute Lymphoid Leukemia (ALL) stands as the primary cause of mortality among individuals under 20 years old in G20 nations. Despite its profound impact, there remains a dearth of comprehensive data evaluating ALL burden in this age group. This pioneering study provides consistent and comparative analysis spanning three decades, encompassing the initial two years of the COVID-19 pandemic, which presented significant challenges in managing pediatric cancer cases.

Methodology

Utilizing the Global Burden of Disease Study 2021 framework, we assessed ALL incidence, prevalence, mortality, and disability-adjusted life years (DALYs) across G20 countries, including European Union member states, from 1990 to 2021 among individuals under 20 years old.

Conclusion

Deaths due to ALL accounted for 22.66% of all cancer causalities in 2021. These findings depict a changing landscape in ALL among youth in G20 countries, with rising prevalence but declining mortality and DALYs. Policymakers should prioritize research, healthcare infrastructure, and awareness campaigns to address root causes and improve outcomes.

Results

Over the period from 1990-2021, prevalence exhibited a notable 61% increase, rising from 147,006 (95% Uncertainty Interval: 127,339 - 175,128) to 236,063 (158,683 - 315,974). Conversely, deaths decreased from 33,411 (24,736-43,906) to 10,792 (7,781 - 13,088), with DALYs declining from 2.7 (2.01 - 3.6) million to 881,747 (632,054-1,072,881).

Among G20 nations, China recorded the highest incidence rate (6.11), followed closely by Italy (6.09), Malta (6.08), and Spain (5.8) per 100,000 individuals. The mortality rate was highest in Mexico (2.03), followed by Indonesia (1.33) and China (1.26) per 100,000 individuals, while DALYs were most pronounced in Mexico (160.65) and Indonesia (107.05).

Regarding age distribution, the highest incidence occurred at 5.9 years, with a count of 7,539 (5,302 - 9,406), and the highest mortality was observed in the 10-14 years age group, totaling 2,880 (2,162 - 3,374).

Furthermore, males consistently bore a higher burden compared to females across the entirety of the study period (1990-2021).





