



The Oncologic Emergency: Tumor Lysis Syndrome; A Retrospective Analysis of Trends and Disparities in the United States

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INTRODUCTION

- Tumor Lysis Syndrome (TLS) is a life-threatening oncologic emergency resulting from the rapid breakdown of tumor cells.
- The massive release of intracellular contents leads to severe metabolic imbalances, including hyperkalemia, hyperuricemia, hyperphosphatemia, and hypocalcemia.

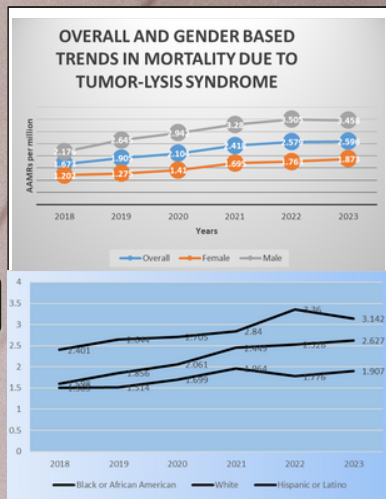
PURPOSE

- To analyze trends in mortality due to TLS in the United States from 2018–2023.
- To identify disparities in mortality rates based on age, gender, race, geographic region, and urbanization.
- To provide insights for targeted interventions to reduce mortality from TLS.

METHODS

Data Source: US TLS mortality statistics from CDC-WONDER (2018–2023).
 Study Design: A retrospective analysis following STROBES criteria.
 Statistical Analysis: Age-Adjusted Mortality Rates (AAMRs) per 1,000,000 people, Annual Percentage Change (APC) and Average Annual Percentage Change (AAPC), Stratification by age, gender, urbanization, race, census region, and states. Joinpoint regression model used for trend analysis.

RESULTS



RESULTS

- **Racial Disparities:** Highest AAMR: NH Black or African American (2.84) with an APC of 6.24%.
- **Geographical Disparities:** Highest AAMR: Northeast (2.39) with an APC of 8.07% (95% CI: -1.65 to 18.74, p = 0.08).
- **State-wise Disparities:** Highest AAMR: Washington (2023: AAMR 5.11 vs 2018: AAMR 2.42), showing a concerning spike in mortality.

DISCUSSION

- The increasing AAMR despite advancements in cancer care suggests the need for enhanced TLS management and preventive strategies.
- **Future research should explore:**
 - Biological factors contributing to racial disparities.
 - Healthcare access issues in high-risk regions.
 - Early detection protocols for high-risk cancer patients.

RESULTS

Mortality Trends: 5,486 deaths in the US from 2018–2023.
 AAMR increased from 1.67 (2018) to 2.60 (2023), with an AAPC of 9.43% (95% CI: 5.90 to 13.07, p = 0.00158).
 Gender Disparities: Males had a higher AAMR (3.03) than females (1.54)
 APC:
 ◦ Males: 9.26% (95% CI: 4.44 to 14.30, p = 0.05).
 ◦ Females: 10.01% (95% CI: 7.01 to 13.09, p = 0.0006).
 Age-Related Mortality
 • Highest mortality in 65+ age group (AAMR: 10.76).
 • APC: 10.24%, indicating a steady rise in mortality.

CONCLUSIONS

- TLS-related mortality has risen significantly over the past six years, with males, older adults, NH Black individuals, and Northeast residents being the most affected.
- Washington has shown the most alarming increase in mortality, necessitating urgent healthcare interventions.

REFERENCES

Available upon request.