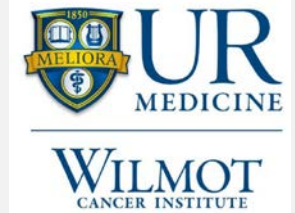


Arrhythmia Burden in Patients with Indolent Lymphoma

Mujtaba Soniwala DO¹, Saadia Sherazi MD¹, MS, Susan Schleede MS¹, Scott McNitt MS¹, Tina Faugh², Jeremiah Moore PharmD², Justin Foster PharmD¹, Clive Zent MD², Paul Barr MD², Patrick Reagan MD², Jonathan W Friedberg MD², MSSc, Eugene Storzynsky MD PhD¹, Ilan Goldenberg MD¹, Carla Casulo MD²

¹Department of Medicine, University of Rochester School of Medicine and Dentistry; ²Wilmot Cancer Institute, University of Rochester Medical Center



Introduction

Indolent Non-Hodgkin lymphomas (NHL) comprise a heterogeneous group of diseases including marginal zone lymphoma (MZL), lymphoplasmacytic lymphoma (LPL), small lymphocytic lymphoma/chronic lymphocytic leukemia (SLL/CLL), and follicular lymphoma (FL). These compose a heterogeneous group of disorders that frequently measures survival in years due to the long natural history of these diseases. Frequency and morbidity of cardiac arrhythmias in patients with indolent lymphoma is unknown, but recent observations note that arrhythmias are an increasing problem. Due to advances in treatment for indolent NHL with emergence of novel therapeutics, combined with an aging population and a long natural history, understanding of arrhythmia burden in indolent lymphoma is an area of research with important implications for patients undergoing active treatment as well as for long term lymphoma survivors.

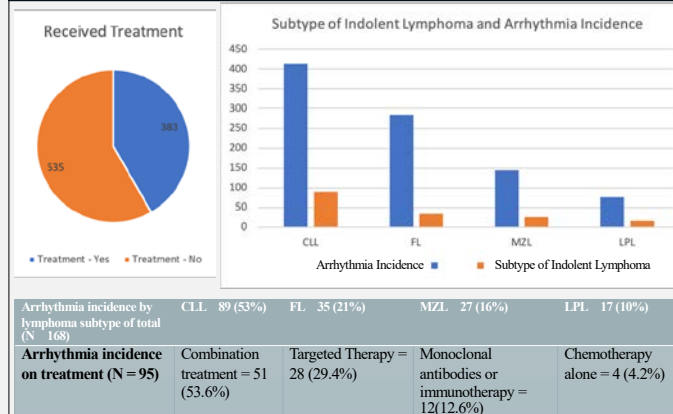
Objectives

- Define the rate of arrhythmic events and sudden cardiac death in patients with indolent lymphoma during management

Methods

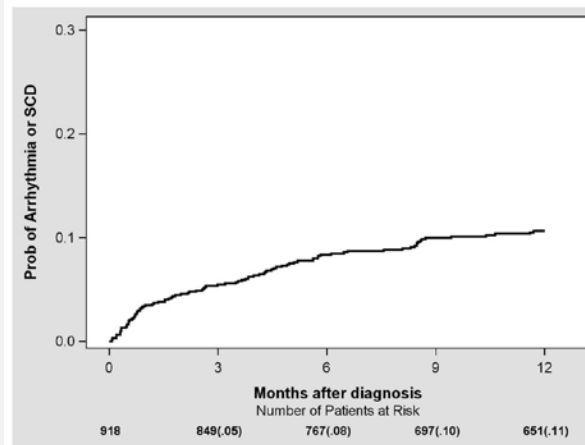
- Adult patients 18 years or older with indolent NHL treated at the University of Rochester Wilmot Cancer Institute between 2013-2019 were included in the Cardio-Oncology Lymphoid Malignancies Database and analyzed.
- Cardiac arrhythmias including ventricular arrhythmias (VT/VF), atrial arrhythmias (atrial fibrillation (afib), flutter, SVT and atrial tachycardia), and bradyarrhythmias were identified using ICD-10 codes.
- Kaplan-Meier survival analysis was used to assess cumulative probability of arrhythmia.

Results



- Population:** Male 522, Female 396
- Most common arrhythmia:** Atrial fibrillation in 81 patients (9%)
- During median follow up of 24 months, **168 patients (18%) developed a new or recurrent arrhythmia.**
- Overall, there were **80 (9%) deaths.** Ten deaths were related to cardiovascular diseases; of which **8/10 (80%) were from sudden cardiac death.**

Figure 1: Cumulative probability of any arrhythmia or sudden cardiac death in study population



At 6 months from diagnosis, cumulative probability of developing any arrhythmia was 8%

Conclusions

- This real-world cohort demonstrates that patients with indolent lymphoma could have an **increased risk of cardiac arrhythmias** that is possibly exacerbated by treatment.
- Atrial fibrillation** was the most common arrhythmia identified in this study and appears increased compared to the incidence in the general age matched population (1-1.8 per 100 person-years).
- Surprisingly, of 80 deaths, **8 (10%) were attributed to sudden cardiac death.**
- This data set contributes important information that can help identify patients at increased risk of cardiovascular morbidity and mortality that can impact treatment.
- Prospective monitoring in these patients may better define the incidence and associated risks of arrhythmias.

Limitations and Future Directions

- Patients who have CLL are commonly treated with ibrutinib, which has a known side effect of Afib in up to 9% of patients.
- 63 patients out of 168 patients identified to have an arrhythmia were known to have a prior history of arrhythmia.
- Future directions** will focus on risk factors for arrhythmias, subset analysis by histologic subtype, other factors affecting rates of arrhythmia, and developing an approach to prevent and treat arrhythmias in this patient population.

References

- Chihara D, Nastoupil LJ, Williams JN, Lee P, Koff JL, Flowers CR. New insights into the epidemiology of non-Hodgkin lymphoma and implications for therapy. *Expert Rev Anticancer Ther.* 2015;15(5):531-544. doi:10.1586/14737140.2015.1023712
- Gribben, JG. How I treat indolent lymphoma. *Blood* 2007; 109 (11): 4617-4626. doi: https://doi.org/10.1182/blood-2006-10-041863
- Schnabel RB, Yin X, Gona P, et al. 50 year trends in atrial fibrillation prevalence, incidence, risk factors, and mortality in the Framingham Heart Study: a cohort study. *Lancet.* 2015;386(9989):154-162. doi:10.1016/S0140-6736(14)61774-8
- Wiczer TE, Levine LB, Brumbaugh J, et al. Cumulative incidence, risk factors, and management of atrial fibrillation in patients receiving ibrutinib. *Blood Adv.* 2017 Sep 8;1(20):1739-1748. doi: 10.1182/bloodadvances.2017009720. PMID: 29296820; PMCID: PMC5728342.