ARRHYTHMIA BURDEN IN PATIENTS WITH INDOLENT - LYMPHOMA -

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INTRODUCTION

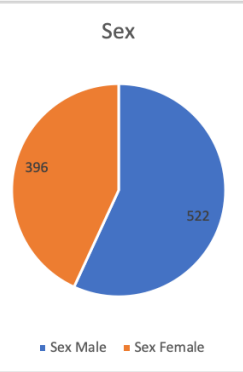
- Indolent Non-Hodgkin lymphomas (NHL)
  - Heterogeneous group of diseases that include
    - Marginal zone lymphoma (MZL), lymphoplasmacytic lymphoma (LPL), small lymphocytic lymphoma/chronic lymphocytic leukemia (SLL/CLL), and follicular lymphoma (FL).
- Survival is frequently measured in years due to the long natural history of the diseases.
- Frequency and morbidity of cardiac arrhythmias in patients with indolent lymphoma is unknown.
  - Recent observations note that arrhythmias are an increasing problem
  - Advances in treatment/novel therapeutics + Aging population + long natural history → important implications
    - For patients undergoing active treatment
    - Long term survivors

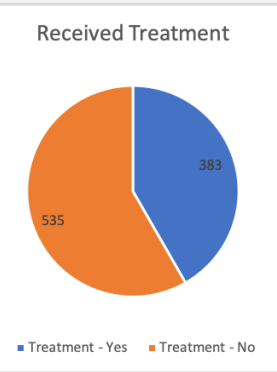
OBJECTIVES AND METHODS -

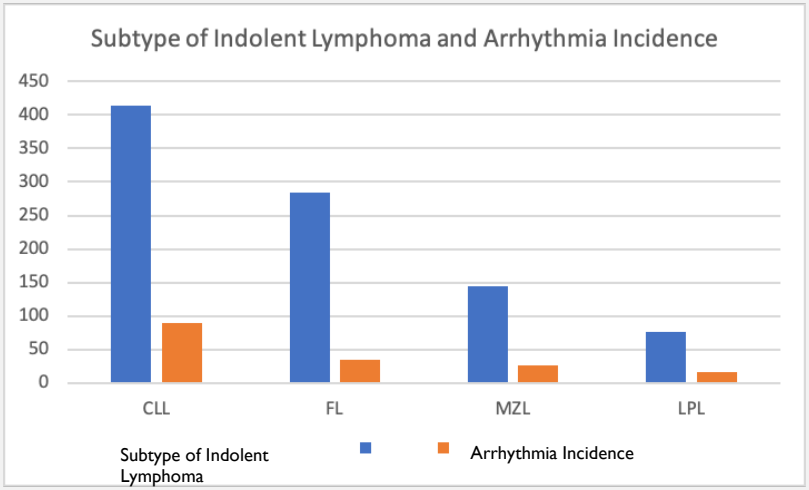
- **Objective:**
  - Define the *rate of arrhythmic events* and *sudden cardiac death* in patients with - indolent lymphoma during management -

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

RESULTS



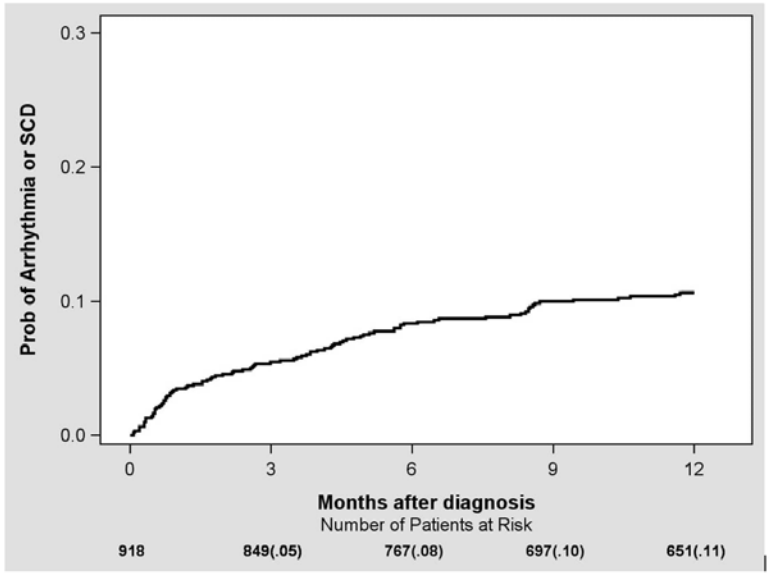




Arrhythmia incidence by lymphoma subtype of total (N = 168)	**CLL = 89 (53%)**	**FL = 35 (21%)**	**MZL = 27 (16%)**	**LPL = 17 (10%)**
Arrhythmia incidence on treatment (N = 95)	Combination treatment = 51 (53.6%)	Targeted Therapy = 28 (29.4%)	Monoclonal antibodies or immunotherapy = 12(12.6%)	Chemotherapy alone = 4 (4.2%)

Most common arrhythmia: Atrial fibrillation in 81 patients (9%)

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%

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. -**

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.
- **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.