“Analysis of the Feasibility of the Pediatric Initiative Network (PIN) Assessment System in Increasing Fertility Preservation Rates amongst Adolescent, Young Adult (AYA) Cancer Patients in Louisiana”

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Introduction

- Cancer amongst Adolescent and Young Adults (AYA) is increasing in prevalence. AYA is defined as patients between the ages of 15-39 years
- In 2024 alone the National Cancer Institute predicts 84,100 new cases of cancer.
- Survival rates for AYA cancer patients has increased to 86% due to innovations in chemotherapy, radiation, and stem cell transplantation.
- Chemotherapy, radiation therapy, and stem cell transplantation can cause gonadotoxic effects leading to infertility in AYA patients
- The American Society of Clinical Oncology recommends that ALL patients receive counseling and information about the effects of cancer treatment and infertility and recommends fertility preservation (FP) for AYA patients
- The Pediatric Initiative Network (PIN) cancer risk assessment classifies AYA cancer patients as; minimally increased risk of infertility, significant increased risk of infertility, or high level of increased risk of infertility.
- Oncology providers need to be aware of risk of infertility for AYA patients to refer for FP

Objectives

- Our objective is to analyze with documentation of fertility preservation discussion and PIN system in their medical records of AYA cancer patients and determine referral rates for fertility preservation at time of diagnosis treated at Children’s Hospital of New Orleans – a Minority-underserved NCORP site

Methods

- A retrospective chart review was performed on AYA cancer patients who received care at Children’s Hospital New Orleans between 2021-2023
- N=110 AYA cancer patients were identified and N=28 (25%) of patients had documentation of FP and N=10 (9%) had PIN classification noted in medical records
- In depth chart review was conducted on the 10 patients who had PIN classification to analyze demographic and clinical pathologic data, level of PIN risk assessment, treatment modalities and fertility preservation referral rate

Diagnoses of Patients (n=10)

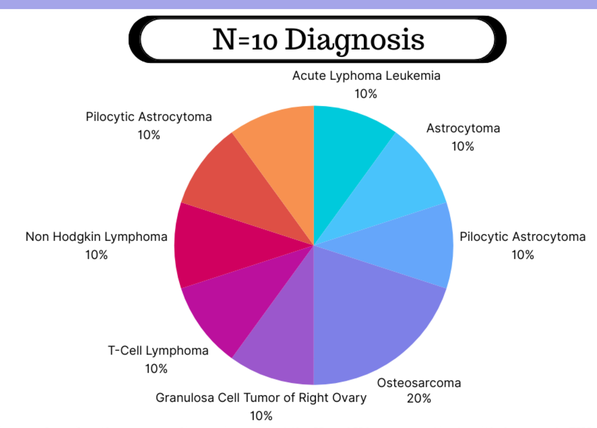

Figure-1 describes the common diagnosis amongst the N=10 AYA cancer patients with documents PIN system in their medical records. Out of the n= 10, N=2 (20%) were diagnosed with Osteosarcoma, N=1 (10%) was diagnosed with Acute Lymphoma Leukemia, N=1 (10%) was diagnosed withAstrocytoma, N=1 (10%) was diagnosed with Pilocytic Astrocytoma, n=1 (10%) was diagnosed with Cell Tumor of Right Ovary, N=1 was diagnosed with (10%) T-Cell Lymphoma, N=1 (10%) was diagnosed with Non-Hodgkin Lymphoma, N=1 (10%) was diagnosed with Pilocytic Astrocytoma, and N=1 (10%) was diagnosed with Positive Large Cell Lymphoma.

Treatment Modalities (n=10)

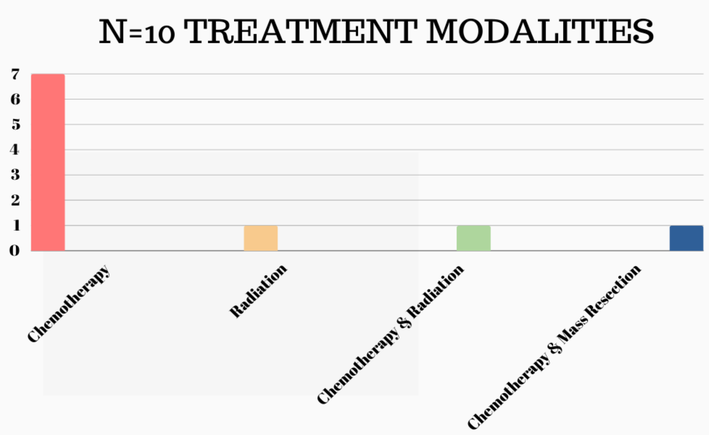

Figure-2 describes treatment modalities for n=10 AYA cancer patients in the study. Within N=10, N=7(70%) received just chemotherapy, N=1(10%) received just radiation, N=1(10%)) received chemotherapy and radiation, N=1 (10%) received chemotherapy and mass resection.

PIN Risk Stratification (n=10)

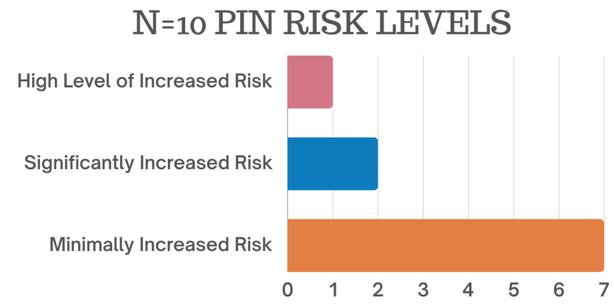

Figure-3 describes n=10 of the original n=28 that received a PIN infertility risk level based upon cancer stage and treatment modalities. Within the study n=7 (70%) ranked minimal risk of infertility, n=1 (10%) ranked adverse risk of infertility, n=1 (10%) ranked medium risk of infertility, and n=1 (10%) received significant risk of infertility.

Results

- Preliminary data of N=10 found n=3 (30%) were diagnosed with metastatic cancer, n=1 (10%) diagnosed as stage 1, n=3 (30%) diagnosed as stage 3.
- Common treatment modality was chemotherapy increasing risk of gonadotoxic effects.
- PIN risks infertility assessment documented in n=10; n=7 (70%) were classified as minimal risk, n=2 (20%), were classified as significantly increased risk, and n=1 (10%) were classified as high level of increased risk.
- Of those n=10, n=1 (10%) were referred to fertility specialist for sperm banking. However, fertility preservation method and completion was not documented.

Conclusion

- Our data show that less than 10% of AYA patients treated for cancer in between 2021-2023 had documentation of their risk for infertility with cancer therapy
- Future studies should examine the socioeconomic factors, facilitators and barriers of AYA patients receiving fertility preservation referrals
- Further data analysis is needed to conclude the effectiveness of the PIN system on increasing fertility preservation referrals and rates for these patients

References

- *Adolescents and young adults (ayas) with cancer*. Adolescents and Young Adults (AYAs) with Cancer - NCI. (n.d.). https://www.cancer.gov/types/aya#:

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