

The distribution and treatment outcomes of paediatric cancer patients referred for radiotherapy in low and middle-income countries (LMIC) – The Uganda experience

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Background and Objective

- Cancer is one of the major causes of death for paediatrics and most paediatrics die due to social economic factors e.g: poverty, limited treatment facilities, limited access to education / information, scattered rural populations, scarcity of oncology experts, etc.
- LMIC have younger populations, proportion of children with cancer is significant.
- The burden of paediatric tumours in our radiotherapy resource-challenged center, is not well documented; hence the main objective of this study was to evaluate the distribution and treatment outcomes of paediatric tumours and to propose strategies that could improve outcomes.

Methods

- To evaluate the distribution and treatment outcomes of Paediatric cancers referred for Radiotherapy, we retrospectively reviewed all the patient's records/files referred to our department, from January 2015 to December 2018.
- The study involved patients aged 21 years and below with confirmed histological diagnosis referred for radiotherapy.
- The American Academy of Paediatrics categorises paediatric:
 - Infancy (birth-2), Childhood (2–12) & Adolescence (12–21) yrs of age
- Information retrieved from patients records/files included age, sex, histological diagnosis, stage, pre-treatment received, ECOG status, treatment intent, radiation dosages (fractionation/total-dose) and follow-up at 3, 6 and 12months

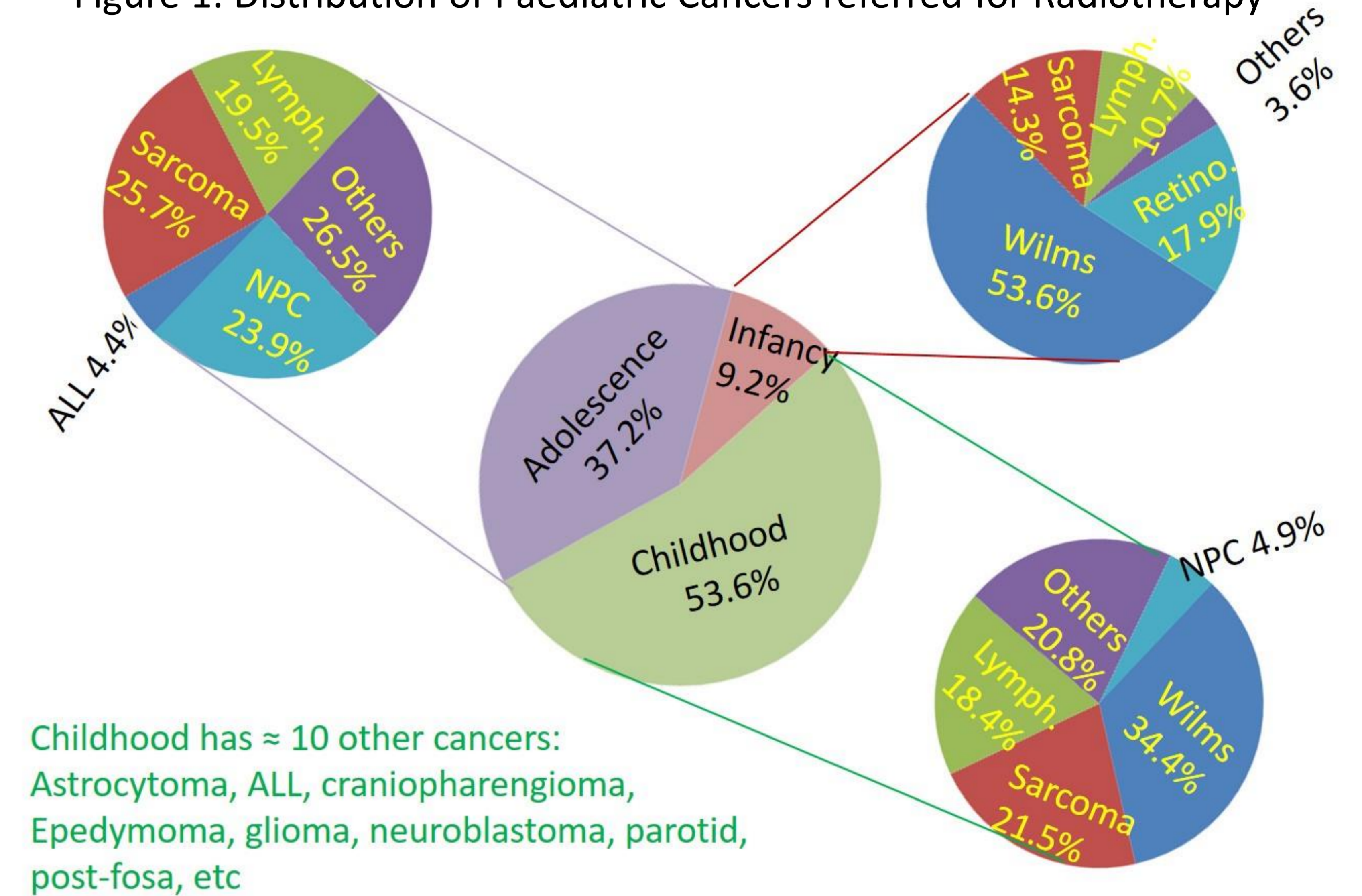
Results

- A total of 4178 patients were referred for RT, 304 (7.3%) were paediatrics. The M:F ratios was 1.2:1.
- Figure 1 show the distribution pattern of the cancers referred for RT
- Overall, the four most common cancers were Wilms (23.4%), Sarcomas (22.4%), Lymphomas (18.2%) and NPC (11.6%).
- 65.8% presented in ECOG status 0–1 and 34.2% in ECOG 2-3.
- Only 12% presented with stages I-II, the rest resented with stages III-IV.
- 61.3% were planned & treated with radical intention.
- Wilms tumours presented mainly with stage III disease, post-surgery / chemotherapy and treated radically with 1.8 Gy daily doses for 6 #
- The prescribed radical doses ranged from 36.0 Gy for lymphomas to 70.0Gy in extremity soft-tissue sarcomas.
- In 65% of the palliative treatments, single doses of 6.0Gy, 8.0Gy and 10.0Gy were prescribed; others were 20.0Gy/5# and 30 Gy/10#.
- Because large numbers presented relatively with advanced diseases and in poor ECOG status, 67.7% completed the prescribed doses.
- For those who completed their treatments, their conditions at discharge were 52.7% in ECOG 0-1, 25.8.7% in ECOG 2-3 and 21.5% in ECOG 4.
- After 6 months and one year of follow-ups, 47.7% and 56.8% respectively have been confirmed dead or lost to follow-up.

Discussion and Conclusions

- Paediatric tumours comprised of a wide-range of cancers, accounting for ≈8% of all referrals and ≈90% present with advanced diseases and nearly 40% are treated palliatively which impedes on treatment outcomes.
- Precise diagnosis including pathology and imaging procedures to identify the stage - the foundation on which all subsequent management decisions are based is not readily available in most rural areas.
- One radiotherapy facility with long waiting times also resulted in some patients giving-up or failing to complete treatment. Logistical problems like transport/finances, cultural beliefs and alternative medicines, etc caused delayed referrals and presentations.

Figure 1: Distribution of Paediatric Cancers referred for Radiotherapy



Childhood has ≈ 10 other cancers: Astrocytoma, ALL, craniophangioma, Epedymoma, glioma, neuroblastoma, parotid, post-fosa, etc

Adolescence has ≈ 20 other cancers: Anal, colon, conjunctiva, post-fosa, skin, pineal gland, KS, cacx, breast, oral, glioma, Testicular, blue cell, desmoid, etc

References

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2. Qureshi SS, et al. A cross-sectional study of the distribution of pediatric solid tumors at an Indian tertiary cancer center. Indian J Cancer 2018;55:55-60

