

Webinar #6:

ORGAN HEALTH AFTER CHILDHOOD CANCER PART 4

25th March 2022 | 20:00-21:30 (UTC +8 | Singapore Time)

Program Name:	St. Jude-VIVA Survivorship #6
Event Date:	Friday 25 th March 2022
Event Time:	8:00pm – 9:30pm (Singapore Time)

Programme Synopsis

Lecturer 1:

Late Effects on Bone Health: Bone Mineral Density (Dr Sogol Mostoufi-Moab)

Childhood cancer survivors (CCS) are at risk for poor bone acquisition and alterations in bone resorption given direct impact of cancer diagnosis on the developing skeleton, steroid exposure, treatment with osteotoxic chemotherapy and radiation, or treatment-related complications such as malnutrition, physical inactivity, and reduced muscle strength. Hematopoietic stem cell transplantation and/or treatment with cranial radiation results in endocrine abnormalities that further contribute to skeletal morbidity. The impact of abnormal bone accrual in CCS may be immediate, resulting in fragility fractures during treatment, or delayed due to suboptimal peak bone mass acquisition. Acute lymphoblastic leukemia (ALL) is associated with significant skeletal morbidity, including vertebral compression fractures and osteonecrosis. While skeletal recovery in ALL survivors is noted after completion of therapy, bone mineral density (BMD) may still persist over years depending on other chronic health conditions and lifestyle factors. With future inclusion of retinoid derivatives and Tyrosine Kinase Inhibitors (TKI) in different pediatric cancer treatment regimens, a better understanding of these targeted treatments' detrimental effects on the developing pediatric skeleton is paramount for timely interventions. Dual energy X-ray Absorptiometry (DXA) is recommended for bone health assessment after childhood cancer therapy, and is clinically useful given low ionizing radiation exposure, ease and availability, as well as accessibility for comparison with robust reference data. However, as bone depth is not factored into DXA results, assessment of bone density by DXA is underestimated in shorter individuals. This limitation is of paramount importance when interpreting BMD in CCS complicated by poor growth and pubertal delay. Treatments for low BMD in CCS include prompt recognition and treatment of hormonal deficiencies, repletion of vitamin D insufficiency/deficiency and

supplementation of poor calcium intake. Furthermore, CCS should be counseled regarding the benefits of regular physical activity for bone remodeling and deleterious effects of smoking and alcohol consumption.

Lecturer 2:

Late Effects on Bone Health – Osteonecrosis (Dr Seth Karol)

Osteonecrosis has become an increasingly recognized side effect of the treatment of hematological malignancies in children. Modern therapy has intensified glucocorticoids and asparaginase. While these changes have reduced many other long-term toxicities of therapy, they have resulted in increased bony toxicity including osteonecrosis. Recent work has begun to uncover risk factors for the development of this toxicity. This presentation will summarize the emerging evidence on the frequency and severity of osteonecrosis in childhood cancer survivors. It will also discuss clinical and genetic epidemiology studies and recent preclinical findings which shed new light on underlying risk factors and potential interventions to reduce this potentially debilitating toxicity.