fracture prediction or diagnosis of low bone mass(3).

Authors have reported T-scores in their results and used the same to compare BMD and define osteoporosis. It would be incorrect to use cut-offs of T-scores (WHO criteria) used for postmenopausal women to diagnose osteoporosis in children. International Society for Clinical Densitometry (ISCD) guidelines(3) state that T-score has no relevance in a growing child who has not yet attained peak bone mass and as such should not be used in children. BMD values and z-scores, which are provided in the study, are rightly informative. T-score cannot be used to compare BMD either in between individuals or even in same individuals over time. BMD can be compared at diagnosis and follow-up of a child, which they have rightly provided. The appropriate method for comparing BMD would have been to measure change in BMD (Ä BMD) in each individual over 6 months; if greater than the least significant change (LSC), compare with zero and test for significance. In the same context, their statement "...81% had decrease in BMD and remaining had increase….", has no validity if they do not state that it was more than the LSC. The authors also mention that BMD increased in girls, but they have not mentioned ages of these girls. Was it that they entered puberty and had more increase in BMD surpassing the decrease resulting from disease and therapy?

We totally agree with authors that these children with ALL had decrease in BMD due to various factors described and understand the significance of the same in this group of children, but feel that the work could have been presented in a better way.

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Reply

We thank Dr Naithani and Dr Desai for critically evaluating our paper.

Use of quantitative computed tomography (QCT) for assessment of bone mineral density (BMD): The leading methods of assessing BMD are dual *X*-ray absorptiometry (DXA) and QCT. Utility of DXA in growing children is challenging as the assessment depends partially on bone size. Two-dimensional method of DXA produces values of 'areal' BMD; changes in the third dimension are not accounted for, which leads to underestimation of BMD of smaller sized bones by DXA. This disadvantage is an important consideration in growing children(1). The International Society for Clinical Densitometry (ISCD) official positions that have been quoted by critics are for peripheral QCT (pQCT). We have deployed lumbar QCT measurements; therefore the ISCD official position is not relevant to our study. QCT is considered to be a sensitive measure of monitoring serial changes in bone density of the axial skeleton or proximal femora, although it is less accessible than DXA(2).

Kaste, *et al*.(3) compared QCT Versus DXA in 320 survivors of childhood cancer and concluded that consecutive use of either modality can provide reliable longitudinal information for any single patient and avoid the complex interpretations that ensue from changing evaluation methods. Researchers from St. Jude Children's Research

Hospital, Memphis, have utilized QCT for assessment of BMD in survivors of Pediatric Hodgkin lymphoma and sarcoma, in recently published studies(4).

Use of T-scores: Critics have highlighted the well known fact that T-score (comparison of the current *Z*-score with peak adult BMD) is used in adult interpretation of DXA and should not be included in the pediatric DXA report. Because the T-score is a measure of bone density loss since early adulthood, its use in children whose BMD has yet to peak will always yield a low result. We agree that use of T-scores was unnecessary. Our aim was not to interpret single readings of T-score, but to compare over a period of 6-months. The clarification on T-score had been included in initial draft of manuscript, but had to be omitted for want of space.

Concept of least significant change: Precision is the reproducibility of a measurement and is expressed as the coefficient of variation(CV). Whether a change in a measured value is to be considered to be statistically significant depends on the precision of the measurement technique and the minimum change is termed the least significant change, (LSC), and is equal to 2.8 × %CV for the 95% confidence limit(5). Short term precision reflects the imprecision of the equipment and long-term precision is a measure of machine drift. Both are <1% for the machine used in our study. Thus a change from the baseline measurement of >2.8% would be required to achieve statistical significance. We thank the critics for mentioning the concept of LSC and agree that LSC should have been taken into account while comparing change in BMD.

Increase in BMD in girls: The number of female patients in our study cohort was limited to 4. Their mean age was 3.5 years. Thus, the observation of significant increase in BMD in these patients cannot be attributed to puberty. As the number of female patients is limited, the results need to be interpreted with care.

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