Reply to the comments on our article “Osteogenic abilities of bone marrow stromal cells are not defective in patients with osteonecrosis”

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Dear Editor,

We would like to thank Drs. Gao and Zhang for their interest in our article [1] and valuable comments. They suggested that the behaviour of bone marrow stromal cells (BMSCs) will be different depending on their harvest site (iliac crest vs. necrotic site), so further exploration is necessary to clarify BMSC behaviour in the necrotic site and remote areas. We do agree with them on that point, and it was one of the reasons why we chose the iliac crest for the harvest site.

We had considered harvesting bone marrow from the femoral neck or intertrochanteric area just outside the necrotic area because it was impossible to aspirate living cells from the necrotic area. However, we finally decided to harvest bone marrow from the iliac crest. The reasons were as follows. First, two of the most frequent risk factors, alcohol and steroid use, are systemic. Second, the micro-environment near a necrotic lesion would have been changed secondary to a necrotic event nearby. New bone formation at the outer margin of the necrotic lesion might

be one of them. Third, in a previous study, we evaluated BMSCs isolated from different sites (iliac crest vs. greater trochanter) in same donors. We could not detect any harvest site-related differences in the characteristics of BMSCs, except the lower isolation yield in the greater trochanter [2].

As Drs. Gao and Zhang suggested, cellular and extra-cellular events might combine and cause the onset of osteonecrosis of the femoral head. The results of our study suggest that extra-cellular events are more important.

References

1. Yoo JJ, Song WS, Koo KH et al (2009) Osteogenic abilities of bone marrow stromal cells are not defective in patients with osteonecrosis. *Int Orthop* 33:867–872
2. Yoo JJ, Lee JE, Lim JH, Park YK, Shin CS, Kim HJ (2005) Harvest site-related differences in the isolation yield and osteogenic potential of human bone marrow stromal cells. *Trans Orthop Res Soc* 30:1077

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