Well-Differentiated Hand Liposarcoma with Bone Metastases Treated Successfully with Zoledronic Acid: A Molecular Mechanism

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Dear Editor,

Well-differentiated liposarcoma (WDLS), which is the most common subtype of liposarcoma, can produce metastases with bone destruction [1]. I read with great interest the article by Mystakidou and colleagues [2]. I would like to complete the discussion of Mystakidou and colleagues by introducing a major route by which zoledronic acid could influence bone metastases of liposarcoma.

Bone resorption in metastasis of WDLS is related to the increased rates of tumoral cells associated with osteoclast activity. Recent histopathologic findings revealed areas with sheets of osteoclast-type giant cells in the metastatic foci of WDLS [1]. Fusion of the cell membrane of preosteoclasts is an essential initial step in osteoclast maturation. Cholesterol in the membranes of preosteoclasts has a major role in the osteoclast-like cell formation via cellular membrane fusion

events. Cholesterol in the cell membrane is produced from de novo synthesis via hydroxy-methylglutaryl coenzyme A reductase (HMG-CoA reductase) [3].

Zoledronic acid, which is an anti-osteoporotic drug assigned to a class of pharmaceuticals called bisphosphonates, effectively inhibits the enzyme farnesyl diphosphate synthase in the HMG-CoA reductase pathway which can lead to significant reduction in the osteoclast-like cell formation [4, 5]. Therefore, this effect of zoledronic acid might contribute as one of the major mechanisms for reduced bone destruction in WDLS.

Disclosure Statement

The author declares no conflict of interest.

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