



Disuse induced by botulinum toxin affects the bone marrow expression profile of bone genes leading to a rapid bone loss.

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Mots-cl�s	Animals [4], Bone Marrow [5], Bone resorption [6], Botulinum Toxins [7], Female [8], Mice [9], Muscular Disorders, Atrophic [10], Quadriceps Muscle [11], Transcriptome [12] OBJECTIVES: Molecular events occurring in the bone marrow microenvironment of an immobilized mouse limb after Botulinum toxin (BTX) injection haven't been characterized. BTX injection induces a localized disuse in which the tissue events have well been characterized. METHODS: BTX injection was performed in the right quadriceps; saline injection in the left side was used as control. Mice were sacrificed at 0, 7, 14, 21 and 28 days; tibias were used for microCT analysis; bone marrow from femurs for RT-PCR analysis. RESULTS: MicroCT revealed bone loss and microarchitectural damages on the immobilized side as from 7d; cortical area tended to be lower on the immobilized limb at 28d. Gene expression of formation factors was altered as from 7 days post-BTX: alkaline phosphatase, Tgf�1, Lrp5, Sfrp2. Only Sfrp2 and Lrp5 were maintained altered until 28d. Expression of Dkk1 increased from 21d and represented a late inhibitor of formation. Gene expression of resorption markers increased as from 7d (Rankl, Tracp, Il1�, Il1� and Il6) and was maintained until 28d for Tracp and Il6. CONCLUSION: A localized disuse induces rapid modifications in the bone marrow gene expression leading to bone loss due to an early decrease of formation associated with an increase in resorption.
R�sum� en anglais	
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