Introduction

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The term osteoimmunology (ὀστέον, *osteon* from Greek, “bone”; *immunitas* from Latin, “immunity”; and λόγος, *logos*, from Greek “knowledge”) was coined to identify studies related to interactions between the bone, hematopoietic, and immune systems. These systems are in deep physical contact and share several common pathways.

It is well known that diseases characterized by inflammation are associated with focal and systemic bone loss; despite this, the mechanisms by which the activation of immune system could influence bone metabolism are only now beginning to be elucidated. In the last decades, several investigators throw light upon the relationship between bone and immune system, nevertheless literature data are very often controversial due to different methodological approach and to the use of different models.

This issue aims to summarize the relationship between immune system and bone metabolism considering different topics in particular it will focus on:

- the role of estrogen deficiency in T and B cells proliferation and activation, cytokines production and bone loss;
- the role of dendritic cells at the osteo-immune cross-road and in inflammation-induced bone loss;
- the role of osteoclast precursors in peripheral blood in various bone-lytic diseases;
- the role of immune system in determining multiple myeloma osteolysis;
- the role of vitamin D as immunomodulator and regulator of bone metabolism.

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