EFFECTS OF BLACK COHOSH ON BONE MARROW CYTOLOGY AND EPIPHYSEAL BONE ARCHITECTURE

T.Nisslein, J.Freudenstein, Schaper & Bruemmer Co., Salzgitter, Germany

A standardized isopropanolic extract of rhizoma cimicifugae racemosae (iCR) is traditionally used for alleviating gynecological disorders which are mostly associated with postmenopausal estrogen deficiency. Inspite of its proven estrogen receptor-binding capacity, none of many preclinical laboratory or animal experimental settings have, however, demonstrated any estrogen agonistic effects for iCR so far. Neither uterine nor mammary tissues exhibited an increased proliferation rate as a consequence of iCR treatment in animal or cell culture models. Only in an ovariectomized (ovx) rat model of human osteoporosis, iCR exhibited characteristics (increased bone density, levelled urinary crosslink excretion) that might propose bone as a target organ for its estrogen agonistic properties.

Besides maintaining the equilibrium of bone formation and resorption, other features of bone are estrogen-regulated as well. It has recently been shown that the number of bone marrow megakaryocytes expressing estrogen receptor beta as well as transforming growth factor (TGF) beta and TGF beta-receptor increase in postmenopausal women under estradiol therapy. We therefore examined epiphyseal bone architecture and bone marrow cytology in 3 groups of ovx female Sprague Dawley rats. The first of these groups received iCR, the animals of the second group were treated intragastrically with ethinyl-estradiol, whereas those of the third group remained untreated.

The results that will be presented clearly demonstrate that iCR, besides its inhibitory potential on estrogen deficiency-caused net bone loss possesses other bone specific estrogen-agonistic properties. Absence of estrogen-like activities in critical neoplasia-prone target organs in combination with beneficial agonistic activities in other systems suggests iCR as a candidate-SERM and recommends it as a safe alternative for hormone replacement therapy.

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