



Osteoimmunology, chemokines and a new botanical drug for menopausal osteoporosis.



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Abstract

Our study of MOH databases project an exponential increase in hip fracture admissions and deaths in Singapore this century. Women have smaller and thinner bones than men, and the fall in oestrogen levels at menopause causes rapid acceleration in bone loss leading to osteoporosis and consequent fragility fractures. Hip fractures in Singaporean women have increased by 3.3% (95% CI 3.0, 3.6) annually and this is expected to worsen with the rapidly aging population.

Menopausal osteoporosis results from unbalanced bone resorption by osteoclasts, and reduced bone formation by osteoblasts. Osteoclasts and osteoblasts are recruited into bone by chemokines. Chemokines are a family of small proinflammatory chemoattractant cytokines. Unraveling the interlinked mechanisms between chemokines and the bone at a molecular level is the focus of the rapidly developing field of osteoimmunology.

This talk will review recent advances, from our laboratory and elsewhere, on the role of chemokines to regulate the function of osteoblasts and osteoclasts. Mechanistic insights on chemokine action from randomized control trials on the pharmacokinetics and pharmacodynamics of lead compounds from a novel botanical drug, Epimedium, for menopausal osteoporosis will be discussed.

Biography

E.L. Yong is Professor and Emeritus Consultant, Department of Obstetrics and Gynaecology, National University of Singapore & National University Hospital. His subspecialty interests are reproductive endocrinology, polycystic ovarian syndrome, menopausal osteoporosis and ageing. He is one of the first clinician scientists in Singapore having won CSA (SI) grants on four consecutive 5-year periods. He has publications in high impact journals such as Lancet, Nature, Science, PNAS, EMBO and JAMA open. He was awarded a Ministerial Citation by the National Science and Technology Board in 1999 and the National Outstanding Clinician Scientist Award in 2020.