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Hyponatremia and fractures: should hyponatremia be further studied as a potential biochemical risk factor to be included in FRAX algorithms?

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Abstract

The Fracture Risk Assessment Tool (FRAX®) was developed by the WHO Collaborating Centre for metabolic bone diseases to evaluate fracture risk of patients. It is based on patient models that integrate the risk associated with clinical variables and bone mineral density (BMD) at the femoral neck. The clinical risk factors included in FRAX were chosen to include only well-established and independent variables related to skeletal fracture risk. The FRAX tool has acquired worldwide acceptance despite having several limitations. FRAX models have not included biochemical derangements in estimation of fracture risk due to the lack of validation in large prospective studies. Recently, there has been an increasing number of studies showing a relationship between hyponatremia and the occurrence of fractures. Hyponatremia is the most frequent electrolyte abnormality measured in the clinic, and serum sodium concentration is a very reproducible, affordable, and readily obtainable measurement. Thus, we think that hyponatremia should be further studied as a biochemical risk factor for skeletal fractures prediction, particularly those at the hip which carries the greatest morbidity and mortality. To achieve this will require the collection of large patient cohorts from diverse geographical locations that include a measure of serum sodium in addition to the other FRAX variables in large numbers, in both sexes, over a wide age range and with wide geographical representation. It would also require the inclusion of data on duration and severity of hyponatremia. Information will be required both on the risk of fracture associated with the occurrence and length of exposure to hyponatremia and to the relationship with the other risk variables included in FRAX and also the independent effect on the occurrence of death which is increased by hyponatremia.

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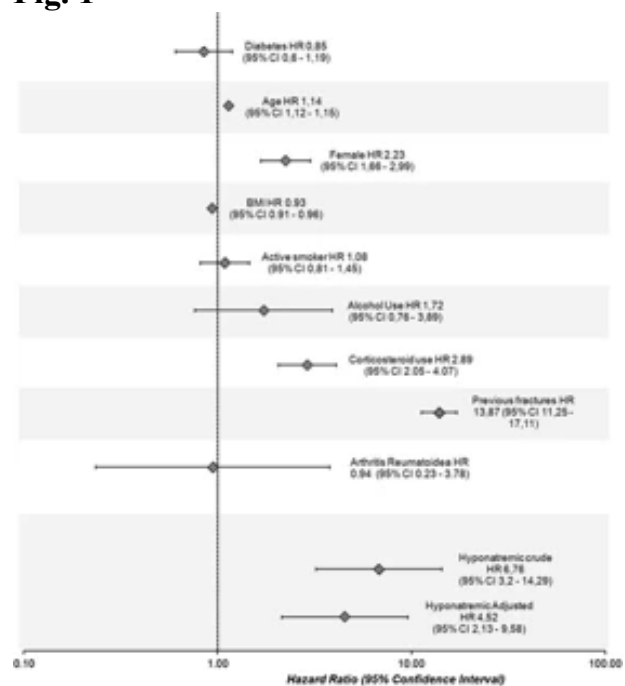
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Fig. 1



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