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A SURROGATE FRAX MODEL FOR MONGOLIA

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Objective: FRAX models are frequently requested for countries with little or no data on the incidence of hip fracture. In such circumstances, the International Society for Clinical Densitometry and International Osteoporosis Foundation have recommended the development of a surrogate FRAX model, based on country-specific mortality data but using fracture data from another country, usually within the region, where fracture rates are considered to be representative of the index country. This abstract describes the development and characteristics of a surrogate FRAX model for Mongolia.

Methods: The FRAX model used the ethnic-specific incidence of hip fracture in men and women living in China, combined with the death risk for Mongolia (United Nations (UN), 2015-2019). The 10-y probability of a major osteoporotic fracture (MOF) was used when comparing the surrogate model and the FRAX model for China. Examples are given for a woman with no clinical risk factors and BMI 25 kg/m², where the BMD was not known. The hip fracture incidence and UN population data were used to calculate estimated number of fractures 2020 and 2050.

Results: The surrogate model gave similar 10-y fracture probabilities for men and women compared to the model for China. There were very close correlations (r=0.99) in fracture probabilities between the surrogate and authentic models, so that the use of the Mongolia model had little impact on the rank order of risk. When the fracture incidence from China was used to the population of Mongolia, it was estimated that 530 hip fractures arose in 2020 in individuals over the age of 50 y, with a predicted increase by approximately 3.6 times to 1896 in 2050.

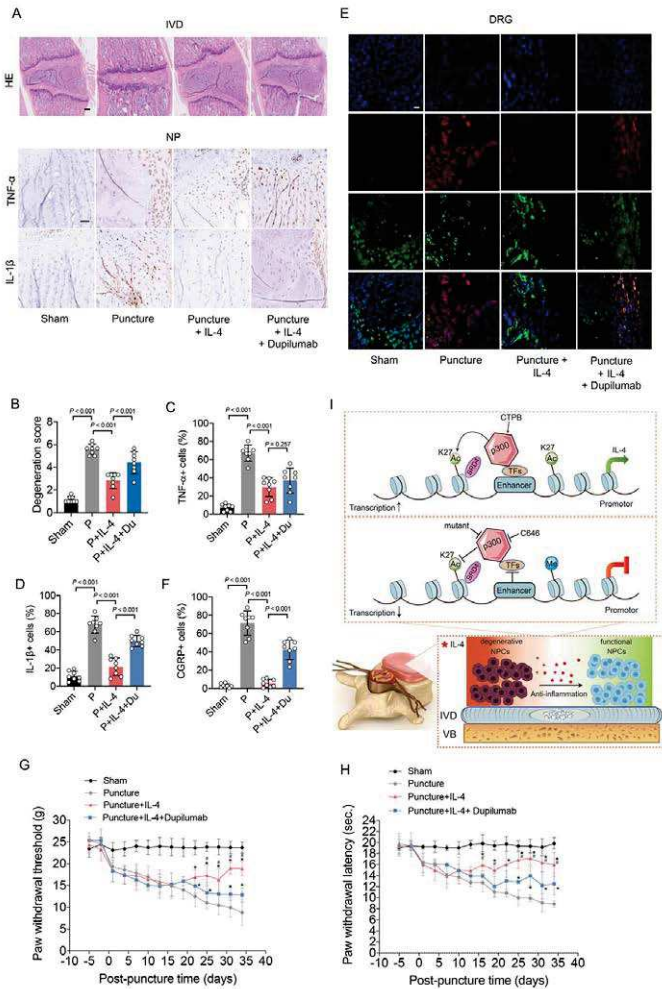


Figure. IL-4 has a therapeutic effect on IVDD and pain behavior. (A-B) Morphological staining and quantitative analysis of the effect of IL-4 and dupilumab on disc degeneration in vivo. IHC staining of TNF-α and IL-1β positive cells in sham, puncture, puncture + IL-4 and puncture + IL-4 + dupilumab group. Scale bar: 100 μm. n=8 per group. (C-D) Quantitative analysis of TNF-α and IL-1β positive cells in (A). (E-F) IHC staining and quantitative analysis of CGRP in DRGs. Scale bar: 100 μm. n=8 per group. (G-H) The 50% withdrawal threshold and thermal withdrawal threshold in puncture model of sham, puncture, puncture + IL-4 and puncture + IL-4 + dupilumab group. (I) Schematic diagram illustrating p300/IL-4 alleviate IVDD and pain by inhibiting the inflammatory microenvironment.

Conclusion: The novel findings of this study suggest that the p300/IL-4/IL-1β axis may represent a promising therapeutic target for IVDD and LBP. These results propose a hypothesis that early in the inflammatory phase, NPCs may initiate a self-protective mechanism through p300, aiding itself in preserving a favorable metabolic microenvironment. This mechanism is primarily mediated by the expression of IL-4, which has the capacity to counteract IL-1β, rather than TNFα.

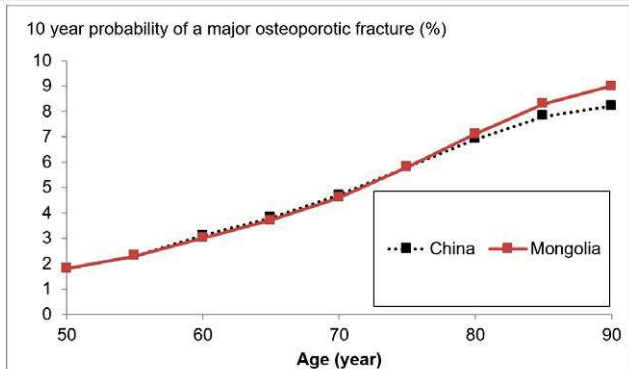


Figure The 10-year probability of a major osteoporotic fracture (%) for a woman with no clinical risk factors, BMI 25 kg/m² where the BMD was not known.

Conclusion: The surrogate FRAX model for Mongolia provides an opportunity to determine fracture probability within the Mongolia population and help guide decisions about treatment.

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EPIDEMIOLOGY OF HIP FRACTURE IN EGYPT AND DEVELOPMENT OF A COUNTRY-SPECIFIC FRAX MODEL

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Objective: To develop a country-specific fracture prediction FRAX[®] tool for Egypt based on the epidemiology of osteoporotic fractures in the State of Egypt.

Methods: Hip fracture data (ICD 10: S72.0, S72.1, S72.2) were sourced from Fracture Liaison Service centres in Alexandria and Assiut University Hospitals covering the northern and southern parts of Egypt during the period from February 2022 to February 2023 [El Miedany et al, Arch Osteoporos 2023;18:115]. The derived age- and sex-specific incidence of hip fracture were combined with national mortality rates (United Nations (UN), 2015-2019) to create a FRAX model for Egypt. Fracture probabilities were compared with those from neighboring countries having

FRAX models. The hip fracture incidence and UN population data were used to calculate the estimated number of fractures in 2020 and 2050.

Results: Age-specific fracture rates were higher in women than in men except for the age intervals 45-49 y. Hip fracture rates were lower than estimates from Israel, Malta, and Greece, particularly at older ages. Therefore, probabilities of a major osteoporotic fracture or hip fracture were also lower in Egypt than in the comparison countries. When the fracture incidence from Egypt was applied to the population of Egypt, it was estimated that 27,016 hip fractures arose in 2020 in individuals over the age of 50 y, with a predicted increase of approximately 2.8 times to 77,345 in 2050.

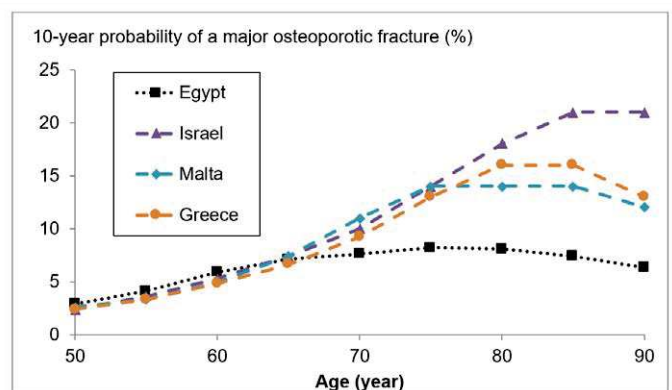


Figure The 10-year probability of a major osteoporotic fracture (%) for a woman with no clinical risk factors, BMI 25 kg/m², and BMD not included.

Conclusion: The FRAX model should enhance the accuracy of determining fracture probability among the Egypt population and help guide treatment decisions.

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EPIDEMIOLOGY OF HIP FRACTURE IN COSTA RICA AND DEVELOPMENT OF A COUNTRY-SPECIFIC FRAX MODEL

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Objective: To describe the epidemiology of osteoporotic frac-