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The Effectiveness of fracture risk assessment using FRAX with or without BMD in hemodialysis

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Objectives: The Fracture Risk Assessment tool (FRAX) is computerized algorithm that determines fracture probability in individuals by integrating important individual clinical risk factors for fracture and mortality, with or without the addition of femoral neck bone mineral density (BMD). This FRAX is used to predict and assess the risk of fracture in various patients groups. This study aimed to evaluate the risk of fracture in hemodialysis patients using FRAX with or without BMD.

Methods: Total 79 hemodialysis patients, 40 men and 39 women, aged 40 years or older were included in the study. The mean age was 62.0 ± 11.8 years and the vintage of hemodialysis was 1894 ± 1938.1 days. We calculated the 10-year probabilities of fracture (%) using the FRAX model with or without femoral neck MD. MBD was measured by dual-energy X-ray absorptiometry. We then performed comparative analyses 10-year probabilities of major osteoporotic fracture (MOF) and hip fracture depending on BMD values.

Results: The 10-year probabilities of MOF and hip fractures using the FRAX without BMD were 6.3 ± 5.2 % and 2.5 ± 3.2 %. When the BMD value was assigned to the FRAX, the 10-year probabilities of fracture were 5.7 ± 3.9 % and 2.0 ± 2.1 %. There was no statistical significance in observing MOF and hip fracture when BMD was tested together or FRAX alone (95% confidence intervals; $p=0.69$ and $p=0.96$)

Conclusions: FRAX may predict the risk of 10-year bone fracture in hemodialysis patients with a single test without BMD.