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Comparison of the risk of fracture in hemodialysis patients with sarcopenia using the FRAX

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Objectives: For chronic patients with chronic diseases such as hemodialysis, the rate of sarcopenia is high. This sarcopenia increases the risk of dying by causing heart failure, fractures, infection, frailty, and resistance to insulin. This study was initiated because of the lack of evidence of a risk of fractures in patients with hemodialysis.

Methods: We studied 53 patients on hemodialysis. For the diagnosis of sarcopenia, we measured muscle mass (measured using a bioimpedance analysis), muscle strength (measured using a handgrip strength), and physical performance (measured using a gait speed). Sarcopenia was diagnosed on the basis of the European Working Group on Sarcopenia in Older People (EWGSOP). The risk of fracture was measured using the fracture risk assessment tool (FRAX) after measuring the femoral neck bone mineral density. The FRAX is computerized algorithm that determines fracture probability in individuals by integrating important individual clinical risk factors for fracture and mortality.

Results: The mean age was 61.7 ± 10.9; There are 27 men and 26 women. A total of 21 patients were sarcopenia (39.6 %), of which 12 were men and 9 were women. There was no difference between the two groups of dialysis duration (2011.8 ± 1637.6 vs 1988.0 ± 2118.5, p=0.963). Differences in values of the 10-year probability of fractures were seen depending on the presence of sarcopenia. The risk of 10-year of major osteoporotic fractures was low in a group that did not have sarcopenia (4.5 ± 3.3 % vs. 7.9 ± 6.2, p = 0.028). And the risk of 10-year of hip fractures was also lower in the group without sarcopenia (1.5 ± 2.0 vs 2.7 ± 1.9, p=0.037).

Conclusions: In hemodialysis patients, the risk of fractures increases if they have sarcopenia. In hemodialysis patients, it is desirable to reduce the risk of fractures by preventing sarcopenia.