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PRESENCE OF ARTIFACTS IN DXA SCANS FOR WOMEN OVER 70 YEARS OLD

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Objective: To examine factors affecting the reliability of the analysis results of DXA scans in women older than 70 years.

Material and Methods: The BMD was assessed with DXA by LUNAR Prodigy Advance, GE, USA, 2008 in the Lumbar Spine (LS) (assessment of BMD L1-L4, g/cm²; Z-score L1-L4, SD; T-score L1-L4, Standard Deviation(SD)) and Femoral Neck (FN) (BMD Region Total, g/cm²; Z-score Region Total, SD; T-score Region Total, SD). Standard radiography of the LS in the lateral projection carried out as necessary. Statistical processing was performed using the program Statistika 8.0.

Results: There were examined 214 women aged over 70 years with osteoporosis ($n=214$, mean age in the examine group was 78.5 ± 8.5 years, BMI (kg/m²) was 43.14 ± 15.6). Vertebra's deformities of the lumbar spine, based on the standard radiography scans or vertebral morphometry scans, were detected in 89 (41.6 %) women; degenerative and focal changes processes lead to additional pathological ossification - Diffuse idiopathic skeletal hyperostosis (DISH or Forestier's disease), osteochondrosis of the lumbar spine, spondyloarthropathy) were detected in 162 (75.7 %)

women. The quantity of artifacts (osteoarthritis, congenital or acquired hip dislocation, aseptic necrosis of the femoral head) in the DXA scans of the femoral neck was significantly less and was diagnosed in 10 (4.7 %) women.

Conclusion: FN DXA is more preferable and reliable for women over 70 years than LS DXA. DXA of the lumbar spine is recommended to complement by vertebral morphometry or standard radiography in order to visualize artifacts and improve the reliability of the analysis. Carrying out DXA of the femoral neck allows you to more accurately interpreting the results of the measurement of BMD in women over 70 years for the verification of osteoporosis. The presence of artifacts is not allowed to exactly estimate the BMD's changes in time.