

Abstract

Nowadays, disease of osteoporosis is worldwide problem. The question is whether osteoporosis affected people of past populations or increasing of osteoporosis is result of today's time. Time, when people don't have enough of solar radiation and vitamin D, time when lifestyle does not match with the term healthy lifestyle.

The goal of this work was to determine whether the buried persons at fort in Mikulčice had less of bone mass which indicates whether osteoporosis figured in their lives. The values of bone mass were obtained by densitometric measurements. The heel bones and fourth lumbar vertebrae were measured. The work continued on a study in which femoral bones were measured. It means, if it was possible in terms of preservation, femoral bones, heel bones and fourth lumbar vertebrae were measured in one person. Another goal of this work was to determine whether the values of the individual measurements show a significant dependence on each other and whether would be possible to infer something about measure of one area from measurement of second area since the biggest problem of archaeological material is preservation and completeness of the material. The work has also a methodological contribution. The work provides precise description of measurement of the heel bones by using Lunar PIXI device which is especially designed to measure the heel bones in living patients and the work also provides possibility to measure vertebrae using Lunar PIXI device although this device is not primarily intended for it. Also the result of measurement of vertebra using Lunar PIXI device are compared with the results of measurement of the same vertebra using Hologic 4500A device.

Based on the results was determined significant difference in BMD values between women and men ($p < 0.05$). The lowest average of BMD has age group 35-50 years for both sexes. The measured individuals (heel bone, vertebra L4 device Hologic QDR 4500A) compared to young healthy individuals of the same sex was not found an increased risk of fractures and also even compared with individuals of the same age and gender also was not found an increased risk of fracture. Important is that individuals from Mikulčice compared with recent population (women and men) have higher average BMD (reference data for the Hologic DXA L1-L4). Furthermore, were found the tight dependencies between measured values of vertebrae L4 (PIXI Lunar, Hologic QDR 4500A) and the femoral bones (sin, dx). On the basis of regression equations could be possible approximately to predict how the values of the dependent variable can change with the change of the value of the independent variable at the L4 vertebra and femur.

Keywords: osteoporosis, Mikulčice, DXA, calcaneus, vertebrae