

论著

外源性脂肪对DXA测量健康女性骨密度结果的正性与负性作用

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摘要:

目的: 观察外源性脂肪对Hologic QDR4500A型双能X线吸收测量法(dual energy X-ray absorptiometer, DXA)测量健康成年女性不同部位骨密度结果的影响。方法: 准备5与10 cm厚的猪腹部脂肪垫各1块。测量37名健康成年女性(A组)腹部依次放置两种厚度脂肪垫前后的腰椎骨密度、18名女性(B组)髋部放置此两种厚度脂肪垫前后的髋部骨密度, 以及8位女性(C组)腹部放置5 cm厚脂肪垫前后的全身骨密度。通过配对t检验比较放置外源性脂肪垫前后的骨密度。结果: 腹部放置脂肪垫后, 腰椎的骨面积、骨量、骨密度都显著下降($P<0.001$); 髋部骨面积没有显著改变, 但髋部股骨颈、大转子处及转子间骨量、骨密度均显著增加, 差异有统计学意义 ($P<0.01\sim 0.05$); 全身骨面积、骨量、骨密度在加5 cm厚脂肪垫前后没有显著变化, 差异无统计学意义($P>0.05$)。结论: 腹部的脂肪可以使Hologic QDR4500A型DXA测量腰椎骨密度测量结果显著下降, 对全身骨密度结果没有影响; 髋部的脂肪使测量的髋部骨密度结果显著增加。

关键词: 骨密度 脂肪 双能X线测量

Positive and negative effect of exogenous fat on the bone mineral density in healthy women by dual energy X-ray absorptiometer

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Abstract:

Objective To examine the influence of exogenous fat (lard) on the bone mineral density (BMD) of lumbar spine measured by dual energy X-ray absorptiometer (DXA) Hologic QDR 4500A in different sites in healthy women. Methods Lard packets (5 cm or 10 cm thick) were prepared. The lumbar spine (LS) DXA scans were performed on 37 women (Group A), who were repeated with lard packets (5 cm or 10 cm thick) placed over the abdomen, and the hip DXA scans were performed on 18 women (Group B), who were repeated with lard packets (5 cm or 10 cm thick) placed over the left thigh. Whole body DXA scans were performed on 8 women (Group C), who were repeated with 5 cm thick lard packets over the abdomen. The pair t-test was used to compare the value of BMD with and without lard. Results After lard was placed over abdomen, the bone area (BA), bone mineral content (BMC), and BMD of the LS decreased significantly ($P<0.001$); at the hip, BA had no significant change, but the BMC and BMD of the neck, trochanter, and inter trochanter increased significantly ($P<0.01\sim 0.05$). The BMD of the whole body had no significant change ($P>0.05$). Conclusion Lard impacted the BMD by DXA Hologic QDR 4500A, BMD of the LS significantly decreases, but BMD of the whole body has no significant change. BMD of the hip significantly increases with lard.

Keywords: bone mineral density; fat; dual-energy X-ray absorptiometry

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