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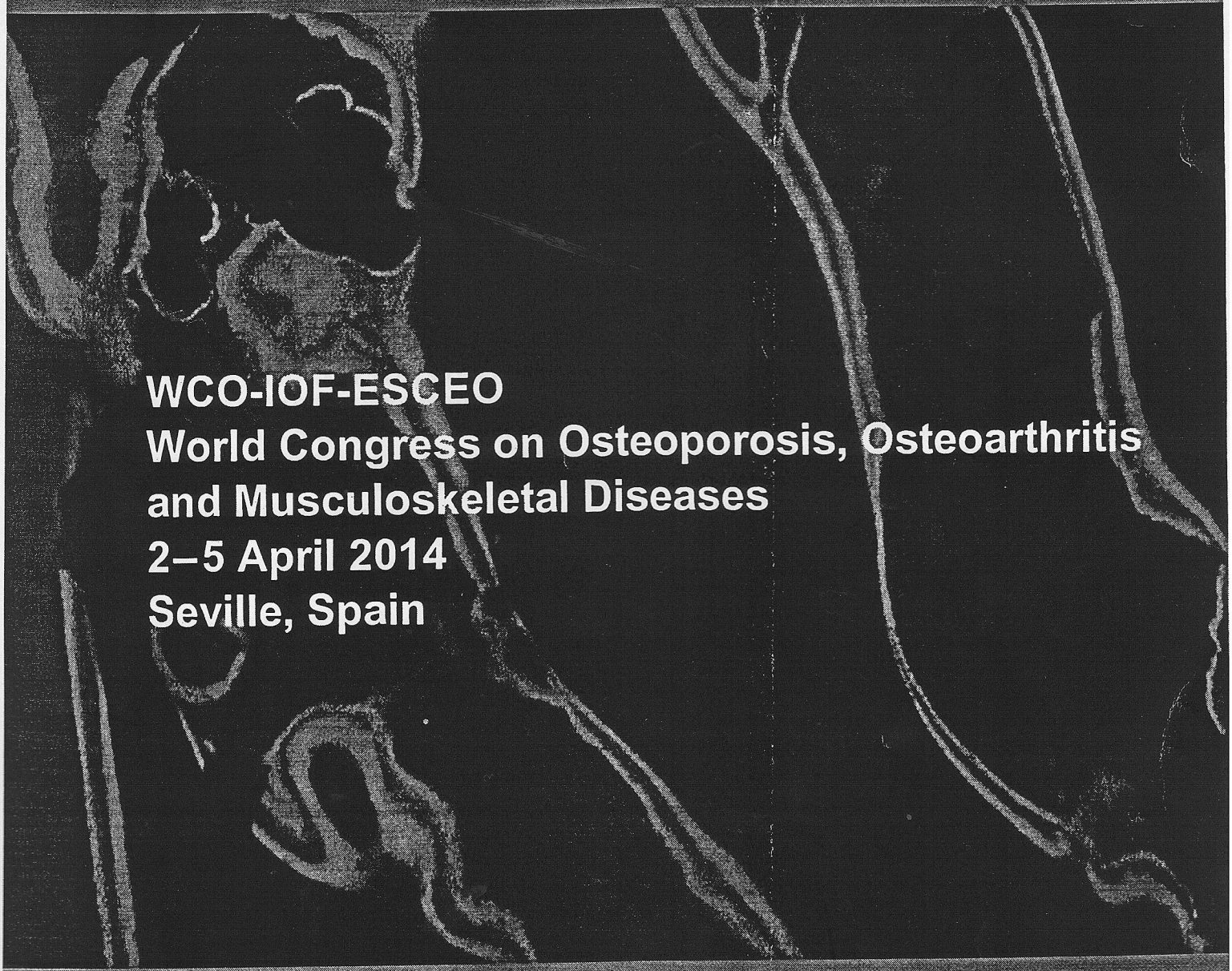
OSTEOPOROSIS INTERNATIONAL

with other metabolic bone diseases

EDITORS IN CHIEF JOHN A. KANIS AND ROBERT LINDSAY



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Material and Methods: We analyzed national hospitalizations records collected at central level by Ministry of Health from 2000 to 2009. Age- and sex-specific rates of fractures occurred at femoral neck in people ≥65 years old. We performed a subanalysis over a 3-year period (2007–2009), presenting data per 5-year age groups, in order to evaluate the incidence of the hip fracture in the oldest population.

Results: We estimated a total of 839,008 hospitalizations due to femoral neck fractures between 2000 and 2009 in people ≥65, with an overall increase of 29.8 % over 10 years. The incidence per 10,000 inhabitants remarkably increased in people ≥75, passing from 158.5 to 166.8 (+5.2 %) and from 72.6 to 77.5 (+6.8 %) over the 10-year period in women and men, respectively. The oldest age group (people >85 years old) accounted for more than 42 % of total hospital admissions in 2009 (n=39,000), despite representing only 2.5 % of the Italian population. Particularly, women aged >85 accounted for 30.8 % of total fractures, although they represented just 1.8 % of the general population. The results of this analysis indicate that the incidence of hip fractures progressively increased from 2000 to 2009, but a reduction can be observed for the first time in women ≤75 (−7.9 % between 2004 and 2009).

Conclusion: Incidence of hip fractures in Italy are continuously increasing, although women aged 65–74 years old started showing a decreasing trend.

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EVALUATION OF THE ROLE OF VITAMIN D RECEPTOR (VDR) GENE POLYMORPHISMS IN TYPE 1-ASSOCIATED BONE DISORDER

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Objective: Low BMD and fracture risk are associated with type 1 diabetes (T1D). Vitamin D receptor (VDR) polymorphisms have been suggested to be associated with the diabetic complications. Therefore, the aim of study was to assess the association between VDR single nucleotide polymorphisms (SNPs) in type 1 diabetic patients and low BMD.

Material and Methods: We studied 66 T1D patients (28 men and 38 women; mean age 31.23±841; duration of the disease 13.40±7.41; HbA1c 8.25±0.95 %). BMD was measured by DXA. QIAamp DNA Blood Mini Kit (Qiagen, USA) was used to purify DNA from whole blood, gene polymorphisms were detected in PCR-RFLP (restriction fragment length polymorphism) analysis. The following restriction enzymes were used to determine the appropriate polymorphism: VDR-FOKI - FokI (BseGI), VDR-ApaI - ApaI.

Results: The presence of the mutant allele VDR-FokI was detected in 79 % of cases (in 41 % cases as heterozygotes and in 38 % as homozygotes). VDR- ApaI SNPs was found in 77 % of cases (in 50 % cases as heterozygotes and in 27 % as homozygotes). There was a significant prevalence of low bone mass among carriers individuals with VDR-FokI SNPs (30.7 % vs. 14.2 %, p<0.001) and individuals with VDR-ApaI SNPs (31.37 % vs. 26.6 %, p<0.001).

Conclusion: The results of the study reflect the high frequency of VDR (FokI, ApaI) SNPs and a significant decrease in bone density in these individuals. VDR gene polymorphisms seem to play a major role in influencing on bone loss in T1D.

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TOTAL BODY BONE DENSITY AND FAT/LEAN MASS DISTRIBUTION IN TYPE 1 DIABETIC PATIENTS

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Objective: There is epidemiological evidence that reduced amount and a decline in the quality of muscle mass associated with an increased risk of fracture. The aim of the study was the examination of total body bone density (TBBD) and the components of body composition in type 1 diabetes mellitus (DM) patients.

Material and Methods: We studied 66 type 1 DM patients (28 men and 38 women; mean age 31.23±8.41; duration of the disease 13.40±7.41; HbA1c 8.25±0.95 %). The research involved anthropometry of patients, general clinic examination, glycated hemoglobin test, DXA performed on "Prodigy Lunar" using a program "total body" and "body composition".

Results: TBBD (g/cm^2) (1.156±0.10 vs. 1.194±0.084, p<0.01) and total Z-score (−0.15±0.94 vs. 0.72±0.63, p<0.001) was statistically lower in diabetic patients in comparison with controls. Fat mass distribution parameters in type 1 DM patients and controls were: Total Body: 29.63±12.80 % vs. 30.01±9.68 % (p=0.32); Android: 29.68±12.14 % vs. 29.90±12.7 % (p=0.50); Gynoid 36.50±13.34 % vs. 36.98±10.88 % (p=0.09); A/G Ratio: 0.80±0.29 vs. 0.87±0.28 (p=0.022); Trunk/Total: 0.46±0.87 vs. 0.48±0.08 (p=0.68); (Arms+Legs)/Trunk: 1.078±0.15 vs. 1.26±0.18 (p=0.009); Total Body Lean mass: (49963.42±2849.845 g vs. 44057.80±9932.179 g, p<0.001).

Conclusion: The data confirmed low total body bone density in type 1 DM patients. There are changes in total body fat mass and lean mass among patients with type 1 DM. Thus mechanisms responsible for the formation of healthy bones require further research.