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STEROID INDUCED OSTEOPOROSIS: THE EFFECT OF CALCITRIOL VERSUS HORMONAL REPLACEMENT THERAPY IN AMENORRHOEIC SLE PATIENTS

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Steroid-induced osteoporosis is the most common cause of secondary osteoporosis. Up to 20% of the trabecular bone could be lost within the first year of treatment. Apart from direct suppressive effect on the bone cells, corticosteroid induced a negative calcium balance through inhibition of calcium absorption and induced urinary calcium excretion. We studied 35 SLE patients who had been on prednisone >10mg/day for more than 6 months. They were amenorrhoeic as a result of the disease or because of cyclophosphamide treatment. All had osteopenia with z score L2-4 <-1. They were randomised to receive hormonal replacement therapy (HRT) Premarin 0.625mg QD day 1 to 21 plus Provera 5mg QD day 10 to 21; or calcitriol (Rocaltrol) 0.5μg QD. All received calcium carbonate supplement 1000mg. At 12 months, those receiving HRT did not show evidence of continual bone loss. Calcitriol was able to retard bone loss at the lumbar spine but bone loss continued at the hip and forearm. The change in BMD was inversely correlated with the change in N-telopepide excretion, a biochemical marker of bone resorption. In conclusion, calcitriol was effective in preventing trabecular bone loss in steroid-induced osteoporosis, although its action was less profound as compaired to HRT. Calcitriol may be considered in these patients when the use of HRT is contraindicated, with careful monitoring of calcium level.

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APOLIPOPROTEIN(a) POLYMORPHISM IN HONG KONG CHINESE: GENETIC AND HORMONAL EFFECTS

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Apolipoprotein(a) [Apo(a)] is an independent risk factor for coronary heart disease (CHD). In addition to ethnic variations its plasma levels vary greatly among individuals and are predominately under genetic control but also influenced by hormones such as growth hormone (GH) and thyroxine. Apo(a) itself is a highly glycosylated protein whose size varies in individuals from about 300 to more than 800 kDa depending on the number of kringle IV (K-IV) repeats in the molecule. Phenotyping of this apolipoprotein shows a range of protein isoforms of different electrophoretic mobility. The more common larger isoforms are associated with lower levels and the smaller isoforms with greater electrophoretic mobility are associated with higher levels in plasma. Apo(a) DNA phenotypes were determined in 198 unrelated healthy Hongkong Chinese (90 men, 108 women, age 19-45) by pulsed field gel electrophoresis of genomic DNA after digestion with the restriction enzyme, KpnI and by the employment of an apo(a) K-IV specific probe derived from the apo(a) cDNA clone Lambda a41 (a gift from Dr.R.Lawn, USA). The size alleles (KpnI fragments) present in this community and their relative frequencies were determined. Size alleles containing 13 to 48 K-IV repeats were observed. The distribution is biomodal with peaks between 20-25 repeats and 30-40 repeats and the most frequent allele had 36 repeats. None of the alleles represented more than 12% of all alleles. Most individuals were heterozygotes. The frequency of non-expressed (no corresponding protein isoform) alleles in this Hongkong Chinese population was 9.7% and we found that the relative frequency of non-expressed alleles increased with K-IV repeat number. Overall the plasma apo(a) levels correlated inversely with the apo(a) size alleles. This effect did not however account for all of the variations in plasma levels. Other environmental factors and the DNA sequence variation in the apo(a) locus may account for this. Our recent studies show not only that GH increases plasma levels apo(a) levels and that thyroxine reduces them but also indicate that both large and small isoforms of apo(a) appear to be similarly affected by these hormones. Phenotype studies in CHD and stroke patients (vs controls) indicate that the higher plasma apo(a) levels are associated with a higher prevalence of smaller isoforms in such patients i.e. the apo(a) alleles associated with higher plasma levels predispose to CHD and stroke.