

عنوان الوثيقة: العامل الوراثي لمجس فيتامين د – د والكثافة الكتلية العظمية

الموضوع: أمراض الغدد الصماء والعوامل الوراثية.

لغة الوثيقة: الإنجليزية.

المستخلص:

### Vitamin-D Receptor Gene Polymorphisms and Bone Mineral Density in Postmenopausal Saudi Women

**Introduction :** Genetic factors are involved in determining bone mineral density (BMD) and the pathogenesis of osteoporosis. Vitamin D receptor (VDR) gene is thought to be a candidate gene for osteoporosis. No information is available on VDR gene polymorphisms in relation to BMD changes in postmenopausal Saudi women.

**Aims :** To study the frequency of VDR gene polymorphisms *ApaI*, *BsmI*, *TaqI* and *FokI* in relation to BMD variation in postmenopausal women.

**Subjects and Methods :** A total number of 580 Saudi postmenopausal women (age > 50 yrs) with normal BMD or with osteoporosis were studied. Women were genotyped by restriction fragment length polymorphisms (RFLPs) of VDR and BMD [at lumbar spine and femoral neck] were determined by dual energy X-ray absorptiometry (DXA).

**Results :** The mean BMD values at the lumbar spine and femoral neck showed significant differences among women with genotypes aa, bb, FF and TT as compared with BMD values in women with genotypes AA, BB, ff and tt, respectively. Compared with women with osteoporotic BMD, the frequency of bb ( $P < 0.01$ ), FF ( $P < 0.05$ ) and TT ( $P < 0.01$ ) genotypes was significantly higher in women with normal BMD, whereas genotypes BB, ff and tt were more prevalent in women with osteoporosis. The odd ratio(OR) to estimate the risk of osteoporosis associated with VDR polymorphic genotypes were: AA (OR = 1.62,  $P = 0.16$ ); BB (OR = 3.92,  $P < 0.001$ ); ff (OR = 2.59,  $P < 0.006$ ); and tt (OR = 3.01,  $P < 0.001$ ), respectively. A significantly higher risk for BB genotypes with age (OR = 5.12,  $P < 0.001$ ), and years since menopause (OR = 5.02,  $P < 0.01$ ), respectively.

**Conclusions :** in postmenopausal Saudi women, VDR gene polymorphisms are associated with BMD and possibly contribute to determinant of bone metabolism.

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الباحثون:

المرتبة العلمية	نوع الباحث	اسم الباحث (انجليزي)	اسم الباحث	*
أستاذ/ دكتوراه	رئيس	Ardawi, MSM	أ.د. محمد صالح محمد عرضاوي	.1
أستاذ مشارك/ دكتوراه	مشارك	Qari, M H	د. محمد حسن قاري	.2
أستاذ/ زمالة	مشارك	Rouzi, A R A	أ.د. عبد الرحيم علي روزي	.3