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EVALUATION OF PERIPHERAL DUAL ENERGY X-RAY ABSORPTIOMETRY TO DETECT OSTEOPOROSIS IN AN HIV-SEROPOSITIVE MALE POPULATION

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CS Short¹, S Shaw¹, M Fisher¹, K Walker-Bone² and Y Gilleece¹

¹Brighton and Sussex University NHS Hospitals Trust, Brighton, UK, ²Brighton and Sussex Medical School, Brighton, UK

INTRODUCTION: Osteopenia and osteoporosis are increasingly recognized in HIV and may cause significant long-term morbidity. Early identification of low bone mineral density (BMD) may enable intervention to prevent fracture. The current standard method for measuring BMD, Dual Energy X-ray Absorptiometry (DEXA), is impractical for use as a routine screening tool. This study evaluated the use of peripheral DEXA (pDXA) as an alternative to DEXA in HIV positive men.

METHODS: Subjects were recruited from a cohort of men attending an HIV out-patient clinic (May 2008–August 2008). Consecutive attendees were recruited to categories: Group A-ARV naïve, Group B-ARV <3 years, Group C-ARV >3 years. Subjects underwent a forearm pDXA and DEXA imaging (lumbar spine and femoral neck) within 12 weeks. Risk factors for low BMD and fracture history were collected. The threshold T score that produces optimum values of sensitivity and specificity for pDXA to identify osteoporosis at any site was derived from a receiver operator characteristic curve. Multivariate logistic regression was used to evaluate independent risk factors for low BMD.

RESULTS: One hundred and sixty-eight men were recruited: median age 45. Osteopenia at any site by DEXA was found in 100/168 (60%) overall; 70%, 53% and 58% in groups A, B and C respectively. Osteoporosis at any site was found in 22/168 (13%) overall; 5%, 11%, 17% in groups A, B and C respectively. ARV exposure/weeks ($P=0.03$), HIV infection >13 years [OR 2.81 (1.6–5.1) $P=0.00$] and fracture post infection [OR 3.23 (1.6–6.6) $P=0.02$] were independently associated with osteoporosis at any site. Using a threshold of $T<-1$, pDXA has 95% sensitivity and 35% specificity to identify osteoporosis at any site, with a negative predictive value of 98%.

CONCLUSIONS: This study confirms a high prevalence of low BMD in HIV-infected men independently associated with fracture post diagnosis, underlining the potential requirement for screening. pDXA has a high discriminatory power as a screening tool and could be easily used in routine clinical practice to identify those patients who need DEXA imaging.

(BHIVA Research Award Winner 2007: Evaluating the use of peripheral DEXA scans in the detection of osteoporosis in a population of HIV-infected men. Yvonne Gilleece)

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