Are predictors of osteopenia and osteoporosis in HIV infected individuals over the age of 50 years different to the general population?

A Holyome[1], DJ Hughes[1], S Mandalia[2], B Patterson[2], A Pozniak[2], D Asboe[2], S Barton[2], M Boffito[2]
[1]*Imperial College London, London UK*
[2]*St. Stephen's Centre, Chelsea and Westminster Hospital, London UK*

BACKGROUND

Osteopenia and osteoporosis are associated with old age and are seen with increasing frequency in HIV-infected individuals[1].

The role of long-term exposure to HIV-related inflammation and cART in causing these remains unclear:

- cART increases life expectancy[2], with associated age-related comorbities
- cART has been implicated in predisposing individuals to metabolic bone disease, such as documented with Tenofovir and protease inhibitors[3]

A clinic dedicated to HIV-infected patients over 50 years of age was established in January 2009 and has been running successfully for two years. All individuals attending the clinic are offered a DEXA scan to assess the presence of osteoporosis.

METHODS

Individuals attending our OVER50 HIV clinic underwent a DEXA scan to measure both spine and femur T scores, determining the presence of osteoporosis or osteopenia.

A proforma was completed for each patient to assess their HIV history, including current and nadir CD4 counts, use of cART, and risk factors for metabolic bone disease.

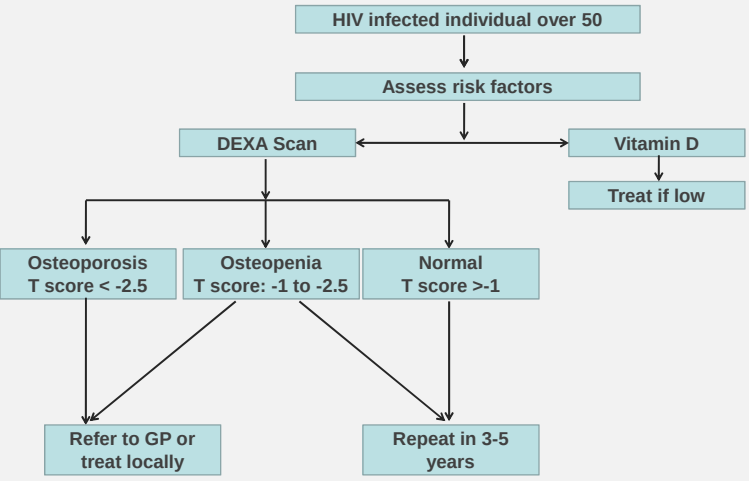
A local algorithm was devised for use in the OVER50 clinic in conjunction with rheumatologists for the diagnosis and treatment of metabolic bone disease in this population (see fig 1).

- Osteopenia is defined on bone scan as a T score of -1 to -2.5, with patients being referred for treatment if they are on long term steroids or in the presence of fragility fractures

-Osteoporosis is defined on bone scan as a T score of <-2.5, with patients being referred to their GP or treated locally

We performed a univariate and multivariable logistic regression analysis (SAS version 9.1) evaluating the service we offered to identify factors associated with the presence of osteopenia or osteoporosis.

Factors included: age, gender, ethnicity, smoking status, HIV infection duration, nadir and current CD4 counts, duration of cART treatment, exposure to protease inhibitors (PI) or tenofovir (TDF), and vitamin D levels.



RESULTS

176 patients attended the dedicated OVER50 HIV clinic between January 2009 and October 2011, of which 134 underwent a DEXA scan.

	Normal	Osteopenia	Osteoporosis
Number	55	60	19
%	41	45	14

- Median (range) age of the 134 who underwent a DEXA scan was 58 (50-82)
- 120 were male
- 112 were Caucasian, 12 Black African and 10 other
- 112 were non-smokers and 22 smokers
- Nadir CD4 count was 168 (1-677)
- Current CD4 595 (188-2004)
- HIV infection duration 159 (1-352) months
- cART intake 114 (1-304) months.
- 63 of 134 patients had never been exposed to PIs and 117 never to TDF
- Median (range) vitamin D level was 58 (1-150).

- 79 patients had a diagnosis of osteopenia or osteoporosis (n=19; 14%). Multivariable logistic regression model identified only age and gender as significant independent predictors of osteopenia and/or osteoporosis and no significant associations were found for any of the HIV-related factors.

CONCLUSIONS

In our HIV-infected over 50 population, DEXA scanning has been shown to be useful in diagnosing osteoporosis, especially in patients who do not attend their GP practice.

Evaluation of our OVER50 HIV clinic showed that:

i. The occurrence of osteoporosis in HIV-infected patients >50 years is similar to reports in HIV-infected individuals of all ages and higher than in the general population; and

ii. Neither length of HIV-infection nor total duration of cART exposure was associated with the development of metabolic bone disease.

These findings suggest that whilst HIV-infected people are at increased risk of metabolic bone disease, the pathophysiology behind this remains unclear. To investigate this further and to confirm our findings, larger cohort studies are warranted.

REFERENCES

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