

FRAX and the assessment of fracture probability in patients with severe and moderate Haemophilia A & B

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INTRODUCTION

There has been evidence that there is a relationship between osteoporosis and haemophilia.

This is most likely the result of a combination of risk factors.

Included risk factors comprise femoral neck bone mineral density, prior fractures, parental hip fracture history, age, gender, body mass index, smoking, alcohol use, glucocorticoid use, rheumatoid arthritis, and secondary osteoporosis

The Fracture Risk Assessment Tool (FRAX) is developed based on the use of clinical risk factors with or without bone mineral density tests to calculate the 10-year probability of a major osteoporotic fracture and hip fracture.

AIM

Evaluate bone health in patients suffering with severe and moderate haemophilia A and B

Identify patients potentially at increased fracture risk who would benefit from intervention by the use of BMD and FRAX.

The FRAX® algorithms give the 10-year probability of fracture. The output is a 10-year probability of hip fracture and the 10-year probability of a major osteoporotic fracture (clinical spine, forearm, hip or shoulder fracture).

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PATIENT GROUP / METHODS

In this observational study 54 adult patients with severe & moderate Haemophilia A (HA) and Haemophilia B (HB) were included after informed consent.

Patients were regular attenders at the Katharine Dormandy Haemophilia Centre, Royal Free Hospital, London

A full medical history including a joint score and activity assessment (HJHS and HAL) were completed

Patients were reviewed for known risk factors for osteoporosis

The study related procedures were undertaken under the umbrella of the KD Coagulation Research Plasma Bank with ethical approval.

A DEXA scan was organized at the day of their visit and serum kept for bone marker evaluation

Calculation of FRAX® : based on FRAX ® WHO Fracture Risk Assessment Tool and answers on questionnaire regarding 1.Age 2. Sex 3.Weight (kg) 4.Height (cm) 5.Previous Fractures 6.Parent Fractured Hip 7.Current Smoking 8.Glucocorticoids 9.Rheumatoid arthritis 10.Secondary osteoporosis 11.Alcohol 3 or more units/day 12. Femoral neck BMD (g/cm²) [<https://www.shef.ac.uk/FRAX/>]

RESULTS

1. DEMOGRAPHICS

Mean age: 41.14 years.

Severe Haemophilia A patients (n) =43

Severe Haemophilia B patients (n) =8

Moderate Haemophilia A patients (n)=3

2. AGE

34/54: <50 years old

20/54 : >50 years old

3. SMOKING HABITS

• 27/54 : nonsmokers

• 11/54 : current smokers

• 16/54 : ex-smokers

4. FRACTURE HISTORY

14/54: report traumatic fracture in one of the parents

24/54: history of traumatic fracture

5. ALCOHOL INTAKE

• 34/54: drinking alcohol

• 20/54: non alcohol use

6. OBESITY

• 24/54 had BMI: >25

• 7/24: obese patients

7. SECONDARY RISK FACTORS

• None was suffering from rheumatoid arthritis

• 4/54: had secondary osteoporosis.

8. FRAX scores

For patients > 50 years old:

20/54 were >50 years old

2/54: FRAX was not reported as they were treated for osteoporosis

18/20 had a FRAX score evaluation:

- 6.71% risk for major osteoporotic fracture
- 1.22% risk for a hip fracture.

DISCUSSION

As measurement of BMD by DEXA is a powerful predictor of fracture.

The FRAX® tool has been developed by WHO to evaluate fracture risk of patients. Based on individual patient models that integrate the risks associated with clinical risk factors as well as bone mineral density (BMD) at the femoral neck.

- Overall, 62,9% (34/54) had FRAX™ measurement.
- 20.37% (11/54) were smokers
- 63% had alcohol intake habits
- 4.4% had BMI>25
- Risk for osteoporotic fracture for our patients : <20%
- Risk for hip fracture for our patients:<3%

CONCLUSIONS

- The current National Osteoporosis Foundation Guide recommends:
- Treating patients with FRAX 10-year risk scores of ✓ > or = 3% for hip fracture or ✓ > or = 20% for major osteoporotic fracture, to reduce their fracture risk.
- Our patients FRAX 10 year risk scores are below those levels
- Through its use of clinical risk factors alone or in combination with BMD, FRAX serves to enhance the physician's clinical judgment and assessment of the patient.



Poster Presented at:

DOI: 10.3232/ajco.2016.11.FF0210.2016

Orthopedic issues
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