Secondary prevention program for osteoporotic fractures at Lille University Hospital

Programme de prévention secondaire des fractures ostéoporotiques au CHRU de Lille

Introduction
The rate of appropriate investigation and management of patient with osteoporosis is very low [1]. Persistence and adherence rates to bisphosphonates and other antiresorptive medications are suboptimal [2]. Secondary prevention of osteoporotic fractures constitutes a public health priority [3]. In the last decade, fracture liaison services (FLS) have been set up in several countries. A FLS is a multidisciplinary system approach to reducing subsequent fracture risk in patients with a recent fragility fracture by identifying them at or proximate to the time they are treated at the hospital for fracture and providing them easy access to osteoporosis care [4]. The objective of this study was to evaluate the impact of a secondary prevention program for osteoporotic fractures on initiation, persistence and adherence with treatment, and on the occurrence of subsequent fractures. Participation rate was also evaluated.

Methods
Patients aged 75 or over with a recent low trauma fractures are identified by a geriatrician in the orthopaedic department. Selected patients are offered assessment at the department of rheumatology and receive a written invitation.

During assessment, information needed includes fracture site, previous history of a low trauma fracture, osteoporosis and fall risk factors, test for risk of falling (unipodal stance test). BMD is measured by DXA using a Hologic bone densitometer (discovery). Osteoporosis is defined as a T-score in one site ≤−2.5, osteopenia as a T-score between −1 and −2.5. Plain spine radiographs are done. Patients receive falls-prevention counseling and are proposed anti-osteoporotic treatment when indicated.

A telephone questionnaire was conducted with participants at least 6 months after assessment. The questionnaire included closed-ended questions: initiation of treatment or failure to initiate, reasons for non-initiation, drug persistence (osteoporotic treatment was part of the patient treatment) and adherence (that is to say drug intake omission was unusual), and the occurrence of subsequent fractures.

Results
From March 2010 to June 2014, 173 patients were offered assessment. One hundred and ten patients eventually received assessment (64%). One hundred and seven patients (97%) were able to undergo bone densitometry (figure 1).

The mean age of the 110 patients was 80.2 ± 5.9 years, and 87 (79%) were women. There were 122 fractures. Major fractures accounted for the majority of fragility fractures screened, n = 78 (64%). The fracture most commonly observed were hip fracture, n = 55 (45%) followed by upper limb fracture, n = 17 (14%). Prior peripheric fractures were recorded in 45% of patients (n = 50) including 48% of major fractures. Vertebral fractures were diagnosed in 40% of patients on spine radiographs (n = 44) while for 3% of patients only (n = 3) prior vertebral fractures were notified as known in the past medical history.

Osteoporosis and osteopenia were diagnosed in 54% (n = 58) and 29% (n = 31) of patients, respectively. Specific osteoporosis treatment was indicated in 103 patients (93.6%). A percentage of 8.7% (9/103) of this patients were treated before the program intervention. Treatment was initiated in 38 patients (46.9%). Seven patients switched to other osteoporosis treatments. Reasons for switching were not known. Reasons for non-initiation (n = 43) were as follows: no prescription (n = 23, 53.5%), patient refusal (n = 2, 4.6%), persistence of a low serum 25-OH vitamin D level (n = 4, 9.3%), dental care issues (n = 2, 4.6%), deficiency in venous network (n = 1, 2.3%). Thirty-five patients (97.2%) were persistent with treatment after 21 months of follow-up (6-49 months). Treatment adherence was considered to be good for 33 (94%) of them.

Fourteen patients (17.9%) suffered a subsequent clinical fracture with a median follow-up of 20 months (4-37 months). Eight (57%) were major fractures. Seven of these patients were treated by anti-osteoporotic drugs (50%).

Discussion
Our prevention program differs from other program. Assessment is proposed to a selected population and includes a combined approach of prompt drug treatment through a specialist osteoporosis management team along with reducing any reversible falls risk factors. Results from the geriatrician evaluation are not presented in this study.
Participation rate reported by other center goes from 38.4% [5] to 96% [6,7]. This percentage is much higher than the around 5% of fracture patients who were screened before the implementation of FLSS [8], confirming that a FLSS is a big step forward in the secondary prevention of subsequent fractures in elderly patients with an initial fracture.

Proportion of patients needed an osteoporotic treatment was high compared to other study [5]. This can be explained by the fact that our inclusion criteria comprise an age limit at 75 or over, while most models of secondary prevention have set this limit at 50 years [6,7]. There is still room for improvement since only 47% of patient initiated treatment, compared to 75 to 90% in other studies [5]. The main cause of non-initiation was the lack of prescription. Active participation of the general practitioner in the secondary prevention program may help to resolve this problem, and systematic follow-up visits during the first 6 months could be also necessary. Our study found a high level of persistence with treatment when initiation is performed. This underlines how important is the first prescription is.

Our study has some limitations. A relatively large number of patients could not be contacted (17.4%). Information obtained from patient is associated with biases.

Conclusion
The osteoporotic prevention program at Lille university hospital has proven to be a potentially effective way of delivering secondary prevention for osteoporotic fractures. The program leads to a high response rate, persistence and adherence to drug treatment when initiation is performed.

Our goal is to develop a more effective program by selecting younger patients. Systematic follow-up visits could be necessary for the first prescription to be made.

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References
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