INT-002

Building for better bones: Evaluation of a clinical pathway in the secondary prevention of osteoporotic fractures.

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BACKGROUND & OBJECTIVES

Osteoporosis is highly prevalent and often undertreated in patients who present on an orthopedic ward with low-energy fractures. Osteoporosis-related fractures are associated with significant morbidity and mortality and impose huge economic burden on health services. Many steps can be taken to prevent and reduce the risk of osteoporotic fractures. However, after taking care of the acute situation, evaluation of and treatment for osteoporosis is often neglected[1]. A multidisciplinary intervention may improve the identification and treatment of osteoporosis and may consequently prevent secondary fractures[2,3]. This retrospective study evaluate the influence of a clinical pathway on the detection and treatment of osteoporosis in hospitalized patients with low impact fractures.

METHODS

Based upon multidisciplinary discussions between orthopedic surgeons, the orthopedic unit doctor, geriatricians, rheumatologists, endocrinologists and clinical pharmacists, a clinical pathway was set up in 2013.

To evaluate this clinical pathway, a retrospective, single center study comparing attitude towards screening and treatment of patients admitted to the orthopedic unit of the general hospital AZ Sint-Jan Brugge – Oostende AV (Belgium) before (PRE) and after (POST) the implementation of the clinical pathway was performed in 2014.

The clinical pharmacist acted as a project and process manager, and was responsible for the implementation, follow-up and evaluation of the clinical pathway. Patient information leaflets and posters were developed and spread out throughout the hospital to aware staff and patients about osteoporotic issues and the clinical pathway. Primary care was briefed on this topic in an information session. Moreover, for every included patient, the clinical pharmacist performed a medication reconciliation review and gave advice concerning the intake of calcium en vitamin D preparations.

RESULTS AND DISCUSSION

A total of 172 patients (86 PRE and 86 POST) were included in the study.

Demographic data of age, gender and fracture type of both study groups were similar.

Demographic data	Before implementation (n=86) n (%)	After implementation[a] (n=50) n(%)	P Value[b]
Median age +/- interquartile range (years)	79 (65-83)	82 (71-86)	0,086
Gender			0,420
Women	66 (77)	35 (70)	
Men	20 (23)	15 (30)	
Fracture type			0,529
Non-vertebral	43 (50)	20 (40)	
Hip	36 (42)	25 (50)	
Vertebral	7 (8)	5 (10)	

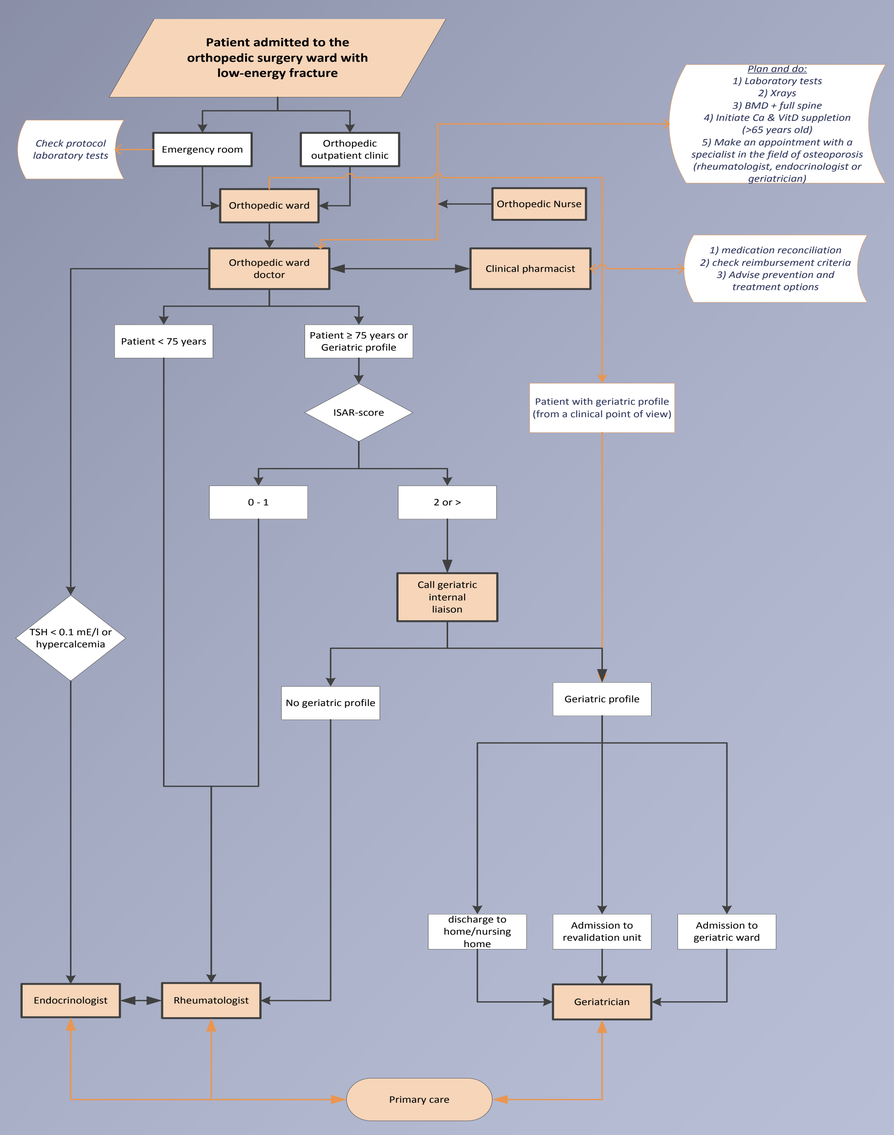
[a]36 patients didn't completed the pathway, [b]P values from Mann-whitney test, Chi square test or Fisher's exact test

The implementation of the pathway resulted in an increase of bone mineral density tests performed (12% to 64%; $p < 0,001$), an increment in number of referrals to a specialist in the field of osteoporosis (14% to 80%; $p < 0,001$) and an increase in prevention (30% to 68%; $p < 0,001$) and treatment (11% to 38%; $p < 0,001$) of osteoporosis.

Outcome	Before implementation (n=86) n (%)	After implementation[a] (n=50) n(%)	P Value[b]
Bone mineral density (BMD) tests	10 (12)	32 (64)	< 0,001
Normal bone	1 (1)	6 (12)	
Osteopenia	5 (6)	15 (30)	
Osteoporosis	4 (5)	11 (22)	
Planned osteoporotic consultation (PCO)	12 (14)	40 (80)	< 0,001
Orthopedics	0	6 (12)	0,002
Geriatrics	4 (5)	15 (30)	< 0,001
Reumatology	8 (9)	19 (38)	< 0,001
Endocrinology	0	0	N/A[c]
Appropriate osteoporosis management			
Calcium and vitamine D	26 (30)	34 (68)	< 0,001
Anti-osteoporotic drug	9 (11)	19 (38)	< 0,001

[a]36 patients didn't completed the pathway, [b]P values from Fisher's exact test, [c]N/A: not applicable

After the implementation of the clinical pathway, there were five times more patients undergoing a BMD test. Moreover, the number of patients receiving anti-osteoporotic pharmacological treatment had doubled. These findings are also consistent with the literature[2,4,5]. Literature indicates that an improvement in appropriate management (prevention and treatment) of osteoporosis minimizes fracture risk[3,6].



Clinical pathway: 'secondary prevention of osteoporotic fractures'

CONCLUSION

The implementation of a clinical pathway improved the identification, referral and treatment of osteoporosis in patients hospitalized due to low impact fractures. A pharmacist can contribute to the care of osteoporotic patients by its role as a coordinator and evaluator in the development of a clinical pathway for the secondary prevention of osteoporotic fractures.

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