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BRIEF COMMUNICATIONS

Brief telephone intervention increases testing for osteoporosis in patients treated in emergency departments for wrist fractures

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Abstract

Previous studies show that identification and treatment of osteoporosis in patients with minimal trauma fractures treated as outpatients are poor. Our aim was to test two interventions designed to increase rates of identification and treatment. This prospective, action research study, using explicit medical record review and scripted telephone interview, was conducted at emergency departments (ED) of three hospitals from April 2007 to February 2008. Participants were patients aged over 50 years who were treated as outpatients with a minimal trauma wrist fracture. Data collected included demographic and fracture details, bone density testing and osteoporosis-related medication change. There were two interventions staff education in ED and fracture clinic and information provided to patients by telephone by a research nurse. These interventions were applied to all patients sequentially. The outcome measure of interest was the proportion of patients who underwent bone density testing (DEXA scans) in the follow-up period, analysed by intervention (clinic or phone). One hundred and seventeen patients were studied. Eighty-six per cent were female; median age 64 years. Ten per cent (12/117) of the ED/clinic intervention group had undergone testing at follow up. At follow up after the telephone intervention 55% (65/117) had undergone testing ($P < 0.001$, χ^2). Patients undergoing testing were significantly more likely to have an osteoporosis-related medication change (relative risk 6.8, 95% CI 2.8–17.9). A brief telephone intervention and provision of information pack significantly improved testing rates for osteoporosis after minimal trauma wrist fracture. An ED/clinic-based intervention resulted in low rates of testing. Treatment of clinical osteoporosis remains suboptimal.

Minimal trauma fracture may be the first clinical manifestation of osteoporosis. There is increased risk of fracture after an initial osteoporosis-related minimal trauma fracture.[1] Osteoporosis-related fractures can have major impacts on patients in terms of physical, psychological and emotional health and on the community as healthcare costs.[2] There is evidence that identification and treatment of osteoporosis can reduce the likelihood of future fractures.[3,4]

A significant proportion of patients suffering minimal trauma fractures is treated initially in emergency departments (ED). Available evidence suggests that between 5% and 31% of ED patients who should be investigated and treated for osteoporosis actually receive it.[5–8] Data from an Australian ED-treated minimal trauma fracture cohort found that 31% were tested and only 18% had an osteoporosis-related medication change.[8]

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The aim of this study is to test two interventions designed to increase rates of testing and treatment.

This study was a prospective, action research, quality improvement study using explicit medical record review and scripted telephone interview methodologies. Participants were consecutive patients aged 50 years or older who were treated in an ED of Western Health (Footscray, Sunshine and Williamstown campuses, combined annual ED census ~130 000) for an X-ray-confirmed wrist fracture because of minimal trauma between April 2007 and February 2008. Patients were identified from existing patient management databases. Patients admitted to hospital for treatment, with known documented osteoporosis at index ED visit, already taking bisphosphonate medications, unable to be contacted for follow up (minimum three attempts) and unable to communicate in English were excluded.

The intervention had two phases that were applied to all patients in sequence, if needed. In the initial phase ED and fracture clinic staff were provided with education about osteoporosis and asked to provide patients attending with a minimal trauma fracture with a pre-formatted information and testing pack. The pack contained information for patients about osteoporosis, signed order forms for bone densitometry and serum 25(OH)vitamin D testing and information for general practitioners (GP), including treatment recommendations. The content of the information pack was based on materials developed by national expert bodies. Approximately 6 weeks after the index ED visit, patients were contacted by telephone by a research nurse (MC) and, with their consent, asked a series of questions, including whether they had bone densitometry testing (if so, initiated by hospital or GP) or medication changes consequent to their fracture. If they had not been tested, the research nurse provided brief information about osteoporosis risk and the importance of testing and treatment and offered to send the patient and/or their GP the information pack. This group received further telephone follow up at least 6 weeks later to ascertain whether they had had bone densitometry or medication changes. The questions were asked initially as open questions followed by specific questioning, in particular regarding medication types, if required. This approach was taken to maximize information quality. No attempt was made to verify patients' self-report of testing or medications, as this was not covered in the study's ethics approval.

Data collected from medical records included demographic data and site and type of fracture (verified from X-ray report). Data extractors and interviewers were not blinded to the aims of the study.

The primary outcome of interest was the proportion of patients who underwent bone densitometry in the follow-up period. Secondary outcome was the proportion commenced on new medications for osteoporosis. The defined medications included calcium supplements, vitamin D, bisphosphonates and selective oestrogen receptor modulators, and strontium ranelate.

Data were analysed by descriptive statistics, χ^2 and Fisher's exact tests using Microsoft Excel and Analyse-It software (http//www.analyse-it.com) and relative risk analysis using an Internet-based calculator. (http://faculty.vassar.edu/lowry/odds2x2.html). The project received ethical approval under the National Health and Medical Research Council (Australia) quality assurance project guidelines.

One hundred and ninety-two patients were screened, of whom 117 were studied. Forty-five were excluded because they were unable to be contacted or were unable to communicate effectively in English and 30 because of already known osteoporosis. Eighty-six per cent of patients were female and median age was 64 years (interquartile range 57–73). Ninety-one per cent (101/117) had isolated fractures of the distal radius.

Overall, 12 patients (10%, 95% CI 6–18%) had had bone densitometry at initial telephone contact; four initiated by the ED/clinic and eight by their GP. At follow up after the telephone intervention 55% (65/117) had undergone testing (clinic intervention vs sequential intervention $P < 0.001$, χ^2).

A total of 38 patients (32%, 95% CI 25–41%) had an osteoporosis-related medication change after their fracture. This was significantly higher for those who underwent bone density testing (34/65 vs 4/52, relative risk 6.8, 95% CI 2.8–17.9). Only one patient in the group who did not have bone densitometry commenced a bisphosphonate; three others received calcium supplements. In those who underwent testing, 11 commenced bisphosphonates, 3 commenced strontium ranelate and 22 commenced calcium supplementation (relative risk for bisphosphonates/strontium ranelate in patients with bone density testing 11.2 (95% CI 1.5–82.4)).

An ED/clinic-based intervention to increase identification of osteoporosis in patients with minimal trauma fracture was associated with a low rate of bone density testing. In comparison, a brief telephone intervention supported by provision of an information pack was associated with a significant increase in bone density testing. That said, osteoporosis treatment rates remained low with both interventions. The failure of the ED/clinic intervention is disappointing but not unexpected. Although reasons for this were not specifically studied, possible explanations include high staff turnover undermining educational efforts, lack of knowledge regarding the benefits of osteoporosis investigation and treatment, failure to identify osteoporosis risk, failure to accept

secondary prevention as an ED or fracture clinic activity and time constraints.

The more successful intervention had as a key feature informing patients verbally and with written materials. It empowered patients to organize testing and to initiate discussions with their doctor regarding possible osteoporosis. This is a novel approach and is also relatively resource-efficient, requiring only about 15 min per patient. Methodologically there is significant overlap with a recently published Canadian study.[9] That study also employed telephone-based patient education and provision of written materials. They reported that this strategy resulted in bone densitometry testing for 52% of patients and that 22% were receiving bisphosphonates 6 months after the index event. These results are almost identical to our findings. Both these projects, rather than focussing on direct provision of services (e.g. clinics), informed and empowered patients and used existing treatment relationships (e.g. GP). This approach is consistent with current theories about optimizing chronic disease management.[10] Other reported strategies to improve identification and treatment of osteoporosis include specific fracture clinics for fragility fractures in older patients,[11–13] fracture liaison nurses[14] and systems to facilitate referral from ED[15] and clinics.[16] Which of these approaches is most cost-effective has not yet been studied.

An important finding is that despite the interventions, 45% of patients did not undergo testing or treatment for osteoporosis in the follow-up period. This study was not designed to identify why this was the case. This is an area deserving of further study.

Failure to identify and treat osteoporosis has potentially serious implications for the patients, particularly an increased risk of future fractures.[1] Only 32% of patients in our study had osteoporosis-specific treatment initiated. This is disappointingly consistent with others' findings.[17–19] This suggests that there are significant gaps in understanding, particularly around the importance of the clinical diagnosis of osteoporosis and the available treatment approaches. Higher resource intense programmes (specific clinics, fracture liaison nurses)[15,16] have reported higher treatment rates, but whether these can be made widely accessible has yet to be explored.

Follow up after the clinic intervention occurred at about 6 weeks after the index fracture while follow up after the telephone intervention occurred up to 6 months later. It is possible that had the clinic group had a longer interval between fracture and follow up a higher proportion might have undergone testing, reducing the effect of the telephone intervention. A previous study at the same health service with follow up up to 1 year found that 22% of patients had undergone bone density testing.[8] When compared with this historical cohort, the result of the sequential intervention (55% testing) remains highly significant ($P < 0.0001$). It is therefore very unlikely that the clinic intervention would have approached the effectiveness of the telephone intervention if a longer initial follow-up interval had been used.

This study has some limitations that must be considered when interpreting the result. Seventy-two per cent of potentially eligible patients were contacted for follow up. Those included may not be truly representative of the whole population. Key differences are that of language and traceability for telephone follow up. For this reason, population efficacy of the telephone intervention may be lower than our results suggest. Based on our data, if additional efforts are not made to maximize access (e.g. interpreters), population efficacy may be as low as 40% (65/165). That is still, however, a significant improvement on base line, ($P < 0.001$). The follow-up component of this study relied on verbal report by patients with potential recall bias. In addition, this project was conducted at a single health service, so may not be generalizable to other settings.

A brief telephone intervention and provision of information pack significantly improved testing rates for osteoporosis after minimal trauma wrist fracture. An ED/clinic-based intervention resulted in low rates of testing. Treatment of clinical osteoporosis remains suboptimal.

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Palliative medicine trainees and their mandatory oncology module

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Abstract

Palliative medicine trainees are currently required to complete 36 months of core and non-core training, including a 6-month oncology module. There are presently few published data from palliative medicine trainees regarding the structure and appropriateness of their curriculum. The aim of this study was to evaluate skills related to the Royal Australasian College of Physicians essential learning objectives and the experiences gained by the individuals during their oncology training. An investigator-designed questionnaire was emailed out to all current Australasian trainees or first year consultants. A 45% response rate was achieved. Women were significantly more negative in their responses to the improvement of communication skills and the understanding of ethics. Chapter trainees rated improved leadership and future management skills lower than other respondents. Fifty-eight per cent of the respondents believed the oncology module should remain mandatory. Although valuable, a more tailored and flexible approach to this part of training should be considered.