

on bisphosphonates and 10 patients had there abbreviated mental score was less than 7. Among the remaining 23 patients, 9 patients (40%) were referred for DEXA scan. This improvement is statistically significant ( $p = 0.03$ , Chi-square test).

**Conclusion:** The re-audit shows that, although there is an improvement in the situation, we are still below the standards of secondary prevention of fragility fractures with 60% of femoral fragility fracture patients not being referred for DEXA scan. A pathway lead by a fracture liaison nurse dedicated to osteoporotic fracture patients should improve the situation. Abbreviated mental score is a useful clinical tool in selecting patients for bisphosphonates.

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### The three part plaster technique—An easy way to manage tibial fractures

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Closed tibial shaft fracture is a common injury. The anteromedial surface of tibia is subcutaneous and has very tenuous skin cover. The shaft of tibia has poor blood supply because unlike the femur, it has very few muscles surrounding it. Because of these problems, the closed method of managing tibial fractures is preferable to the open method whenever possible. This prevents further injury to the soft tissue envelope and also minimises the risk of infection.

Closed treatment usually involves manipulation of the fracture under an anaesthetic followed by the application of an above knee cast with the knee in slight flexion and the ankle in neutral position. The technique of plaster application at the first MUA is critical to the conservative management protocol. This usually needs two assistants, especially so if the patient is strong and muscular. Achieving and maintaining good reduction at the fracture site and simultaneously achieving satisfactory knee and ankle position can be a very daunting task, and one of these is often compromised at the expense of the other.

We present a technique by which the reduction of the fracture and the application of the cast is done in three easy steps.

This technique involves the help of only one unqualified assistant. In our experience this technique has been satisfactory especially for the distal tibial shaft fractures where ankle position is even more difficult to control.

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### Health economics: The cost of treatment of persistent fracture non-unions using bone morphogenetic protein-7 (BMP-7)

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**Purpose of the study:** This study quantifies the cost of treatment of fracture non-unions using BMP-7. We estimated the costs incurred before and up to the application of BMP-7 and compared that to the cost incurred after its application.

**Materials and methods:** Twenty-nine patients who were treated with BMP-7 were identified and prospectively followed up. The cost of each treatment episode was estimated including hospital stay, theatre time, orthopaedic implants, drug administration, investigations, transport, clinic attendances and physiotherapy treatments. The total cost of all episodes up to the point of receiving BMP-7 was estimated. Similarly the cost following treatment with BMP-7 was analysed.

**Results:** Mean hospital stay before receiving BMP-7 was 26.84 days per fracture. Mean hospital stay after receiving BMP-7 was 7.8 days per fracture. Mean number of procedures performed prior to BMP-7 was 4.16 per fracture and following BMP-7 was 1.2 per fracture. Total cost of treatments prior to BMP-7 was £346,117 (£13,844.68 per fracture). Costs incurred following BMP-7 administration were estimated as £183,460 (£7338.4 per fracture). The cost of BMP-7 was £3122.3 per fracture.

**Discussion:** The average cost of treating persistent fracture non-unions using BMP-7 was £7338 (53.0% of the total costs of previous unsuccessful treatment of non-unions,  $p < 0.05$ ). The average number of procedures was 1.2 per fracture treatment following BMP-7 administration compared to 4.16 prior to BMP-7 ( $p < 0.05$ ). A significant reduction in the use of hospital beds, theatres and other resources was noted following BMP-7 treatment. Treating non-union is costly, but the financial burden could be reduced by early BMP-7 administration when a complicated or persistent non-union is present or anticipated.

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### Effects of cryolesion on spinal trigger points

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The efficacy of cryoanalgesia for the control of trigger-point back pain is assessed in this study. Fifty-one consecutive patients who underwent cryo-lesioning with a cryoprobe in the in the spinal surgery professorial unit of a teaching hospital in the UK in the last 2 years were sent a questionnaire to identify the type and severity of pain they suffered, the underlying diagnosis and the treatments received before the cryoprobe were noted and eventually the results of the latter. Twenty-three out of the 51 patients were found to be suffering from trigger point backpain exclusively.

Croprobe analgesia using the age old method of freezing the trigger point resulting in long term neuropraxia was offered to the patients who were suffering unremitting backpain despite several previous attempts to control pain. Results showed that 83% of them benefited from the procedure.

An easily reproducible method of locating the trigger points and the results are presented.

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#### **Human bite injury in North East England: A review of 92 cases including the impact of alcohol intake on this mode of violent assault**

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Ninety-two retrospective cases of human bite injury referred to a Plastic Surgery Department are presented. Particular emphasis is placed on the relationship of alcohol intake to these injuries, their distribution and subsequent management. A review of the literature is conducted and trends in alcohol intake and its impact on this violent injury are discussed.

The human bite is a leisure time injury of the young single male in the North East. It has been shown that there is a clear link to alcohol and in particular, weekend drinking. Prompt operative intervention and wounds located at the head and neck have been shown to be associated with a decreased risk of subsequent infection, which reflects findings in the earlier literature.

Fifteen cases were infected. One was the result of a postoperative complication, the remainder being infected on admission. The majority of infected cases were upper limb bites and were associated with a delayed presentation.

This study provides an insight into the presentation and associations of the human bite injury.

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#### **Hip fractures patients and post-operative hyponatremia—The Boston experience**

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Post-operative hyponatremia in the elderly population is a major health problem. The reported incidence in the literature varies from 3 to 30%. However, there are very few reports, which clearly address post-operative hyponatremia in hip fractures. Hyponatremia is defined as sodium level below 130 mmol/l in our hospital. The main aim of this study was to analyze the incidence and identify the associated contributing factors leading to post-operative hyponatremia in patients with fractures of the femoral neck. One hundred and twenty-eight patients who underwent treatment for hip fracture from December 2004 to May 2005 were included in the study. Demographic details and blood parameters information was obtained from the trauma admission records and the Hospital Information Support System (HISS). The mean age at the time of operation was 82.5 years. The mean pre-operative sodium level was 135 mmol/l. Ninety-eight percent of the patients had their post-operative blood test done within 48 h. Pre-operative hyponatremia was seen in four patients (3.1%). Post-operatively 16 (12.9%) patients developed hyponatremia on day 1 and the incidence decreased to 2.41% (3 patients). However, some patients showed a tendency to develop hyponatremia around the 5th post-operative day (5 patients—4%). With further detailed analysis, patients in their 7th decade were more prone to develop hyponatremia compared to the others. Surprisingly patients over 85 years and above had a relatively lower incidence (2.34%) of hyponatremia. In our series, there was no statistically significant difference between the pre and post-operative serum sodium concentrations.

Though there is some evidence, regarding elderly people developing hyponatremia during early post-operative period our study shows that there is a tendency for these patients to develop hyponatremia later during the 1st week. Hence, we believe that close monitoring of these patients is essential especially during the first 10 days post-operatively to prevent hyponatremia and its complications.

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#### **Gap index—A good predictor of failure of plaster cast in distal forearm fractures**

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