shortages of adrenaline pre-filled syringes and due to their speed and ease of use relative to ampoules, we feel acknowledgement and advice to stock such equipment should be appreciated in this time of AAI shortage.

A. Travers and K. Taylor, by email

1. Office of Chief Dental Officer England. Adrenaline for anaphylaxis kits – a reminder to Health Care Professionals. NHS Improvement, 2018.
2. SDCEP. *Drug Prescribing for Dentistry. Dental Clinical Guidance*. Third Edition, 2016.
3. Müller M P, Hänsel M, Stehr S N, et al. A state-wide survey of medical emergency management in dental practices: incidence of emergencies and training experience. *Emerg Med J* 2008;**25**: 296-300.

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Medication-related osteonecrosis

Patients with a hidden risk of MRONJ

Sir, in secondary care we see many cases of medication-related osteonecrosis of the jaw (MRONJ). The referring dentists are often blind-sided by the diagnosis, as their patients may not have disclosed the use any of MRONJ-related medicines. I'd like to highlight to readers a group of patients who should raise suspicion of being at risk of MRONJ.

Signs & symptoms of osteoporosis²

- Back pain
- Progressive loss of height
- Stooped posture
- Bony fractures
- Kyphosis
- Dowager hump
- Joint/muscle aches

Bisphosphonates (BPs) are the mainstay pharmacological treatment for patients with osteoporosis. Once absorbed, their half-life is over ten years.¹

They are also used in many other conditions, including metabolic bone disorders and bone cancer. Dentists should have a

high index of suspicion in patients with a history of the above conditions, or if they are displaying signs and symptoms of osteoporosis (Box 1).²

Discussing their past drug history is important. It is also wise to enquire if they have ever attended hospitals for injectable medications. Intra-venous (IV) BPs place patients at a particularly high risk of MRONJ, and patients often forget about them.³

Approximately a fifth of patients on oral BPs will be switched to a different medication due to intolerances. Commonly, these are in the form of gastric irritation or musculoskeletal pain.⁴

Oral agents they can be switched to include vitamin D, calcium, HRT (eg Raloxifene) and strontium ranelate.

Alternatively, they may be switched to parenteral medicines such as IV BPs, parathyroid hormone (teriparatide) or denosumab.⁵

A patient presenting with a combination of any of these medications should be treated with a high index of suspicion for historic BP use. In such circumstances, we suggest calling the patient's GP practice. With the patient's permission, they can provide a more reliable drug history.

In addition to BPs, other MRONJ-related medicines include RANKL inhibitors (denosumab) and anti-angiogenic drugs (bevacizumab, sunitinib, flibcept).³

H. Antov, by email

1. Drake M T, Clarke B L, Khosla S. Bisphosphonates: mechanism of action and role in clinical practice. *Mayo Clinic Proc* 2008; **83**: 1032–1045.
2. Kanis J A. Diagnosis of osteoporosis and assessment of fracture risk. *Lancet* 2002;**359**: 1929–1936.
3. Scottish Dental Clinical Effectiveness Programme. *Oral Health Management of Patients at Risk of Medication-related Osteonecrosis of the Jaw*. Dundee: Dundee Dental Education Centre, 2017.
4. Kennel K A and Drake, M T. Adverse effects of bisphosphonates: implications for osteoporosis management. *Mayo Clinic Proc* 2009; **84**: 632–638.
5. Aspray T J, Francis R M. Treatment of osteoporosis in women intolerant of oral bisphosphonates. *Maturitas* 2012; **71**: 76-78.

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