

IN BRIEF

- Musculoskeletal disorders can affect co-operation during dental treatment
- Musculoskeletal disorders may affect oro-facial function
- Musculoskeletal disorders can affect the structure and eruption of the dentition
- Sedation with benzodiazepines is contraindicated in some muscular diseases
- Drugs used to control musculoskeletal disease may affect oral structures

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General medicine and surgery for dental practitioners

Part 8: Musculoskeletal system

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Disorders of the musculoskeletal system may impact on dental management in diverse ways. Diseases of the bones may have a direct influence on treatment and joint disorders can also cause difficulties. Cervical spine involvement may lead to poor neck extension causing difficulties in providing dental treatment under local anaesthesia or allowing the provision of a safe general anaesthetic. Muscular disorders may mitigate against safe general anaesthesia. As with all medical disorders a thorough history can help to prevent many of the possible problems which may occur secondary to musculoskeletal diseases.

GENERAL MEDICINE AND SURGERY FOR DENTAL PRACTITIONERS:

1. Cardiovascular system
2. Respiratory system
3. Gastrointestinal system
4. Neurological disorders
5. Liver disease
6. The endocrine system
7. Renal disorders
8. Musculoskeletal system
9. Haematology and patients with bleeding problems
10. The paediatric patient

POINTS IN THE HISTORY

These can be divided into diseases of bone, joint disorders and relevant soft tissue disorders. If the patient gives a history of radiotherapy to the head and neck region, the possibility of irradiation of the maxilla or mandible should be borne in mind. Dental extractions in such patients should be avoided if possible due to the risk of osteoradionecrosis (death of bone due to irradiation endarteritis obliterans).

DISORDERS OF BONE

Osteoporosis is a condition in which there is a deficiency of bone matrix and calcium salts. Bone which fractures easily is the principal complication. Patients will often complain of low back pain due to vertebral collapse. The bone is structurally normal but there is a deficiency of it. Hormone Replacement Therapy in the post-menopausal female decreases the severity of the disorder. Osteoporosis is considered a major risk factor for periodontal disease.

Fibrous dysplasia may affect a single bone (monostotic) or multiple bones (polyostotic). It consists of an area of bone replaced by fibrous tissue leading to local swelling. In the polyostotic disorder there may be associated skin pigmentation (café au lait patches). Rarely there may be mucosal pigmentation. The disease is usually self-limiting although in the craniofacial region it may interfere with the dental occlusion and vision.¹ In cases of polyostotic fibrous dysplasia associated with pigmentation and precocious

puberty in females the name Albright's Syndrome is applied. Radiographically the bone has a ground glass appearance. Serum calcium and phosphate levels are normal. Surgical treatment consists of 'debulking' lesions.

In Paget's Disease of bone there is progressive bone enlargement. There is a male predominance. The prevalence of this disease appears to be decreasing.² The disorder consists of alternating bone deposition and resorption. Initially there may be no symptoms but later, bone pain and deformities may become evident. There is an increased likelihood of pathological fracture and there may be cranial nerve compression. The bone is hypervascular which can ultimately lead to high output cardiac failure. Rarely, an osteosarcoma may develop in Paget's Disease. Diagnosis is made by clinical and radiographic features and the blood alkaline phosphatase level is greatly increased. The skull may show a large irregular area of radiolucency-osteoporosis circumscripta – and the bone is described as having a 'cotton wool' appearance. There may be hypercementosis. These patients are susceptible to chronic suppurative osteomyelitis. In view of the hypercementosis extractions will often need to be 'surgical' and carried out under antibiotic cover.

Osteopetrosis signifies a condition in which the bone density is increased but the bone is nevertheless structurally weak. The patient may suffer fractures or bone pain but is often asymptomatic. Decreased marrow activity may lead to anaemia. Some patients may be taking corticosteroids.

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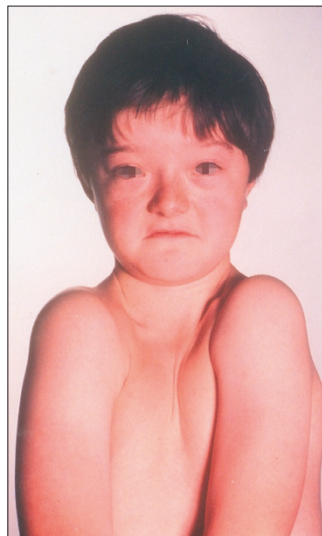


Fig. 1 A patient with cleidocranial dysplasia. The clavicles are absent or stunted due to a defect in membrane bone formation

teroids. These patients are prone to osteomyelitis or fracture. Dental extractions should be as atraumatic as possible, flaps should be avoided if possible and extractions should be carried out under antibiotic cover.

Cleidocranial dysplasia occurs as a result of a defect in membrane bone formation inherited as autosomal dominant. It involves mainly the skull and clavicles. The head is large and brachycephalic with a persistent frontal suture. The clavicles are absent or stunted conferring the ability to approximate the shoulders anteriorly (Fig. 1). There is a persistent deciduous dentition, often unerupted permanent teeth, dentigerous cysts and supernumeraries.³

Osteogenesis imperfecta is a rare autosomal dominant condition consisting of a defect in collagen formation. It may be associated with dentinogenesis imperfecta. The patient may give a history of multiple fractures secondary to relatively minor trauma. There may be associated deafness and the patients tend to have weak tendons and bruise easily. Heart valve problems may occur and as a result patients are potentially at risk from infective endocarditis. It is rare to fracture the jaw as a result of dental treatment.

Rickets and osteomalacia may occur in conditions of defective skeletal mineralisation, the former occurring in children ('knock knees') and the latter in adults. The conditions are usually related to a deficiency of intake or absorption of vitamin D. Osteomalacia is sometimes seen in patients with chronic renal failure. Excess osteoid matrix at the costochondral rib junction leads to the appearance of a so-called 'Rickety Rosary'. Dental defects are seen only in severe cases. When there is associated malabsorption the possibility of reduced vitamin K uptake should be considered, as this may affect blood clotting.

A patient with **achondroplasia** would be obvious as the classic 'circus dwarf'. The condition arises due to a defect in cartilaginous bone formation and is inherited as autosomal dominant. The relevance to dentistry is that the incidence of malocclusion is increased and patients may have a diabetic tendency.

JOINT DISEASE

Osteoarthritis may occur as a 'wear and tear' phenomenon and occurs due to a degeneration of articular cartilage. It has characteristic radiographic appearances (see later). There are no systemic symptoms. Treatment is mainly by reduction in weight if required when the disease affects weight bearing joints, physiotherapy, local application of heat and anti-inflammatories which may lead to a bleeding tendency.

Rheumatoid arthritis is a multi-system disorder which is thought to be autoimmune in nature. One theory is that an autoantibody to abnormal immunoglobulin in joint tissues leads to the formation of an antigen-antibody complex which activates complement causing inflammation and synovial damage. The mean age of onset is between 30 and 40 years, the



Fig. 2 The fingers are deviated to the ulnar side in this patient with rheumatoid arthritis

juvenile form is known as Still's Disease. There is a female predominance.

Juvenile chronic arthritis may lead to an increased incidence of caries and periodontal disease.⁴ In addition, if the TMJ is involved facial growth may be disturbed.⁵ One of the early signs of development of rheumatoid arthritis may be stiffness of the fingers, particularly in the early morning ('early morning stiffness') which usually decreases during the day. In more advanced disease the direction of the fingers appear to drift away from the thumb (ulnar deviation) (Fig. 2). The onset is often slow but it can be acute with malaise, fever and joint pain. There is anaemia which is normocytic and normochromic – the so-called anaemia of chronic disease. Treatment in the early stages is usually with non-steroidal anti-inflammatory drugs. Second line treatment includes a variety of agents such as gold and the chemotherapy agent methotrexate (this may lead to folic acid deficiency with the potential for secondary oral

Table 1 The multisystem nature of rheumatoid arthritis

• Cardiovascular	– Myocarditis
	– Pericarditis
	– Valve inflammation
• Respiratory	– Pulmonary nodules/fibrosis
• Renal	– Amyloidosis
• Liver	– Hepatic impairment
• Skin	– Palmar erythema
	– Subcutaneous 'rheumatoid' nodules
• General	– Malaise
	– Anaemia of chronic disease
	– Thrombocytopaenia

problems). Corticosteroids have been used for treatment as have antimalarial medications. The mainstay of physical treatment involves occupational therapy and includes household device modification eg modified toothbrush handles, modified kitchen appliances. Table 1 lists the potential multisystem manifestations of rheumatoid arthritis. The recommendation of electric toothbrushes for these and other patients with musculoskeletal disorders should be considered to aid oral hygiene. **Felty's syndrome** consists of rheumatoid arthritis, splenomegaly leading to leucopaenia, anaemia and lymphadenopathy.

The skin disorder psoriasis may have an associated arthritis which usually resembles a less

severe version of a rheumatoid arthritis. Blood tests are normal, oral lesions are rare. Occasionally treatment might be with methotrexate.

Gout may be of primary or secondary type. In primary gout there are raised serum levels of uric acid leading to the deposition of urates, especially in joints, leading to arthritis. In secondary gout certain drug treatments may precipitate the condition. An alcoholic binge can instigate gout in those predisposed to it. Gouty tophi may occur where masses of urate crystals become deposited in joints or extra-articular sites eg the subcutaneous nodules of the helix of the ear. The classic joint affected by gout is that of the great toe. Gout may lead to renal failure. The treatment in an acute attack is usually indomethacin but longer term maintenance requires allopurinol which decreases uric acid production.

In patients with prosthetic joint replacements there is no indication for antibiotic cover for dental treatment^{6,7} but there is a suggestion of a degree of immunocompromise in rheumatoid arthritis and thus antibiotic cover may be wise for these patients. The same may be said of the patient with diabetes mellitus who has a prosthetic joint.

OTHER DISORDERS

Ankylosing spondylitis is a chronic inflammatory disease mainly of young males, affecting the spine. Over 90% of cases are HLA B27 positive – the disease is partly genetically determined. There is ossification of ligaments and tendons and the onset is insidious. The patient often complains of low back pain. A quarter of patients may develop eye lesions. Patients may also have aortic valvular disease or cardiac conduction defects. As intervertebral ossification develops the radiograph takes on a so-called 'bamboo spine' appearance. Treatment is with anti-inflammatory medications. There are implications for general anaesthesia and these are discussed later. Reiter's Disease consists of the triad of arthritis, urethritis and conjunctivitis. Like patients with ankylosing spondylitis a majority of patients are HLA B27 positive. They are usually 20 to 40-year-old males.

Marfan's syndrome is an autosomal dominant condition which comprises skeletal, ocular and cardiovascular malformations. The patients are conspicuously tall and have lax ligaments. They have a predisposition to lung cysts leading to risk of pneumothorax. Ocular lens dislocation can occur. Aortic dissection is a possibility leading to aortic and mitral valve incompetence. The palatal vault is high and there is an increased incidence of TMJ dysfunction. There may be associated cardiac disease which may make the patient at risk of endocarditis.

In Ehlers-Danlos syndrome the patient's principal complaints are of lax joints and bruising easily (there may be deficient platelet function). The skin is elastic (Fig. 3) and there is a predisposition to mitral valve prolapse. This disorder of collagen formation (of which there are

various sub-types) may be autosomal dominant but some types are recessive.

Myasthenia gravis is an autoimmune disease of the neuromuscular junction involving the post-junctional acetylcholine receptors. The condition is characterised by muscle weakness. Ocular, facial and pharyngeal muscles may be involved. The condition is described in more detail in the paper on neurological disorders in this series.

Muscular disorders may be of relevance in dental treatment. Duchenne muscular dystrophy is a sex-linked disorder comprising widespread muscle weakness which tends not to affect the head and neck but may be relevant in terms of ease of access to treatment or provision of general anaesthesia or sedation (see later). The affected muscles appear to be enlarged – pseudohypertrophy. Cardiomyopathy and respiratory impairment may occur. Acquired myopathies include polymyositis and dermatomyositis (the latter if there is an associated skin disorder). These are rare and immunologically mediated inflammatory myopathies comprising pain and muscle weakness. There are often circulating autoantibodies present. The female incidence is twice that of the male. Speech and swallowing may be difficult. The characteristic rash may occur in up to a third of cases of polymyositis which consists of a butterfly-shaped violet rash across the bridge of the nose and cheeks. There may be associated Raynaud's Disease (a vasospastic disorder resulting in excessive reaction of extremities to cold) or other connective tissue disorders eg Sjögren's Syndrome. Treatment often involves corticosteroids.

Cranial arteritis and polymyalgia rheumatica (PMR) are disorders of blood vessels but cause muscle pain due to ischaemia. Inflammation with luminal obliteration of the medium sized arteries occurs. Giant cells may be found histologically thus the arteritis is a giant cell type. The affected area may be cranial/temporal or more widespread in the case of PMR. In cranial arteritis the eye can be involved leading to blindness. In this form of arteritis there is a unilateral throbbing headache usually affecting middle aged or older females. A biopsy of the temporal artery confirms the diagnosis. Early administration of prednisolone is mandatory if the disorder is suspected to prevent blindness. Ischaemic pain may be felt in the muscles of mastication and this must be differentiated from TMJ pain. Unlike TMJ pain it tends to have a later onset ie middle aged or older and there is no diurnal variation. The pain is more severe and there is an increased erythrocyte sedimentation rate (ESR). In trigeminal neuralgia the pain may be associated with mastication but the ESR is normal and it may thus be differentiated from cranial arteritis. In cases of PMR a similar age and sex distribution is seen compared with cranial arteritis.

A summary of salient points to be obtained in the history is given in Table 2.



Fig. 3 Hyperelasticity of the skin in a patient with Ehlers-Danlos Syndrome

Table 2 Points in the history which may be of relevance in musculoskeletal disease

- **Bone disorders**
 - Osteoporosis
 - Rickets and osteomalacia
 - Fibrous dysplasia
 - Paget's disease of bone
 - Osteopetrosis
 - Cleidocranial dysostosis
 - Osteogenesis imperfecta
 - Achondroplasia
- **Joint disorders**
 - Osteoarthritis
 - Rheumatoid arthritis
 - Psoriatic arthritis
 - Gout
 - Mouth opening
 - Neck extension
- **Other disorders**
 - Ankylosing spondylitis
 - Marfan's syndrome
 - Ehler's-Danlos syndrome
 - Reiter's syndrome
- **Muscular disorders**
 - Duchenne muscular dystrophy
 - Polymyositis
 - Dermatomyositis
 - Cranial arteritis
 - Polymyalgia rheumatica

EXAMINATION

The dental patient may have signs which can be related to their musculoskeletal disorder. A summary is given in Table 3. The patient with osteogenesis imperfecta may have the classic blue sclera, for example (Fig. 4). If there is associated dentinogenesis imperfecta, the teeth may have a brown discolouration with marked attrition due to the weakened tooth substance.

Joint disorders may be suspected from the patient's gait or a deformity may be evident. The osteoarthritic patient may have nodules close to the distal interphalangeal joints of the fingers – so-called Heberden's Nodes. The radiographic appearances of osteoarthritis are characteristic with reduced joint space, subchondral bone cysts and sclerosis and lipping of osteophytes at the joint margins. TMJ function does not appear to be correlated with the radiographic appearance. Patients with rheumatoid arthritis may complain of systemic symptoms in addition to those of the joints. The fingers may be deviated to the ulnar side ie away from the thumb. There may be redness over the small joints of the hands and feet and palmar erythema. Rheuma-

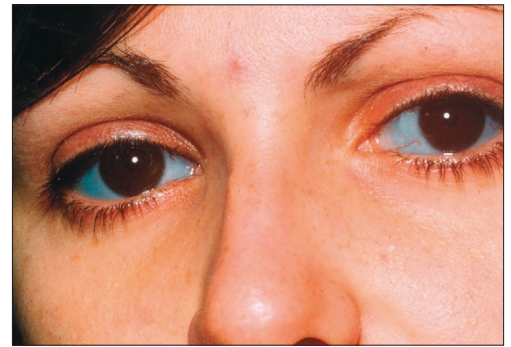


Fig. 4 A patient with osteogenesis imperfecta with the classic blue sclera

toid nodules are sometimes seen – the principal site being near the elbow on the extensor surface of the arm. Radiographic examination shows a widened joint space and the shadows of associated soft tissue swelling. The adjacent bone may be osteoporotic. Sjögren's syndrome may be associated. Radiographic changes are common in the TMJ and include erosions and flattening of the condylar head. As with osteoarthritis, major TMJ problems are not necessarily associated. Still's disease may be complicated by bony ankylosis.

The oral complications of radiotherapy to the oral cavity/salivary glands are summarised in Table 4. The most common complication is a mucositis. When osteoradionecrosis occurs the mandibular bone becomes avascular and necrotic. Overlying mucosa and skin may be destroyed and the bone exposed. An ill-fitting denture can induce a post-irradiation osteomyelitis due to mucosal ulceration.

Table 3 Summary of points on examination of a dental patient with a musculoskeletal disorder

• Joint disorders	– Gait – Swelling, deformity – Heberden's nodes (see text) – Rheumatoid hands – Subcutaneous nodules in rheumatoid arthritis
• Osteogenesis imperfecta	– Blue sclera, may be brown heavily worn teeth if dentinogenesis imperfecta associated
• Cleidocranial dysostosis	– Large, brachycephalic head – Hypoplastic maxilla – Absent/hypoplastic clavicles
• Marfan's syndrome	– Tall stature – Long fingers – High arched palate – Lax ligaments
• Osteoporosis	– Vertebral collapse possibly leading to spinal deformity
• Fibrous dysplasia	– Localised areas of 'swelling' of skeleton (may be associated with skin pigmentation)
• Paget's disease of bone	– Sabre tibia – Increased head circumference – Increased alveolar ridge width
• Ankylosing spondylitis	– Flexed/hunched appearance to back
• Muscle disorders	– May be altered speech/muscle tone
• Dermatomyositis	– Violet/purple butterfly rash over bridge of nose/cheek
• Cranial arteritis	– Tender, prominent temporal artery

Table 4 Potential oral complications of radiotherapy to the head and neck region

- Osteoradionecrosis, irradiation induced osteomyelitis
- Xerostomia
- Radiation caries
- Mucositis, ulceration
- Trismus
- Candidosis
- Periodontal disease
- Taste loss

Infective arthropathy of the TMJ is an unusual event and usually follows a penetrating injury. *Haemophilus*, *Staphylococcus aureus* or *Mycobacterium tuberculosis* are the common infecting organisms.

The patient with Cleidocranial dysplasia has a large, brachycephalic head with bulging frontal, parietal and occipital regions. There is a persistent metopic (frontal) suture visible radiographically and the middle third of the face is hypoplastic. The clavicles are either hypoplastic or absent leading to an inability to approximate the shoulders anteriorly.

A Marfan's patient is often suspected not only due to the tall stature, but also the long fingers and ligament laxity. Such laxity also exists

in the patient with Ehler's-Danlos syndrome but here the skin is also elastic. These patients have a predisposition to bruising and a haematological cause should also be considered.

The sequelae of osteoporosis may be seen as a collapse of the spine leading to a subsequent chest deformity. There also may be decreased alveolar height due to bone loss.

The patient with fibrous dysplasia may have bilateral lesions of the maxilla giving the appearance which has been labelled 'cherubism'. The eyes are classically described as being 'upturned toward heaven'. Hyperpigmentation may be associated with the polyostotic type as mentioned earlier, the lesions are usually on the same side as the bone lesions. Radiographic examination shows a ground glass appearance of the bone.

Paget's disease of bone may be recognised by a characteristic appearance of the lower leg (being convex forward) the so-called 'sabre-tibia'. They may be deaf or have impaired vision secondary to cranial nerve compression. Radiographs may show a mixture of sclerosis and radiolucency giving a so-called 'cotton wool' appearance to the bone (Fig. 5). Symmetrical malar bulging may occur giving the appearance of so-called 'leontiasis ossea'. The alveolar ridges may be widened and radiographic examination of the teeth may reveal a loss of lamina dura as well as hypercementosis.

Ankylosing spondylitis may be recognised by the flexed or hunched appearance of the back. On radiographic examination the spine has a 'bamboo' appearance. There may be restricted mouth opening.

The patient with Reiter's syndrome has an arthritis, urethritis and conjunctivitis. There is an associated keratotic thickening of the skin of the soles of hands and feet – a condition known as keratoderma blenorrhagica. Oral lesions include white patches with a surrounding red area which are painless, transient and may affect any part of the mouth.

Muscular disorders may be suspected from the patient's gait or their speech. A waddling gait develops in Duchenne muscular dystrophy along with the pseudohypertrophy of muscles mentioned earlier. In the facioscapulohumeral type there is a lack of facial expression. The myotonic disorders are characterised by slow muscle relaxation after contraction. If the tongue is affected dysarthria results. Ptosis may be evident and there is atrophy of the muscles of mastication. Intellectual deterioration also occurs.

Patients with polymyositis and dermatomyositis may have difficulties in speaking and swallowing due mainly to muscle contracture. A violet/purple butterfly-shaped facial rash may occur extending over the bridge of the nose and cheeks. There may be associated Sjögren's Syndrome. The mouth may have a purple erythematous appearance with areas of superficial ulceration.

The patient with cranial arteritis will have little to see on clinical examination but may have



Fig. 5 This 'cotton wool' appearance to the skull is seen in Paget's disease of bone

a prominent temporal artery on the same side as the pain which is tender to palpation. Diagnosis is confirmed by temporal artery biopsy. Patients with PMR predominantly have painful, weak and stiff shoulders.

GENERAL AND LOCAL ANAESTHESIA, SEDATION AND MANAGEMENT CONSIDERATIONS IN THE DENTAL PATIENT WITH MUSCULOSKELETAL DISEASE

The patient with osteogenesis imperfecta may have secondary chest deformities which may be severe enough to compromise respiratory function. This should be borne in mind when assessing a patient for GA and in extreme cases, intravenous sedation. The patient with osteopetrosis may be anaemic or may be on corticosteroid therapy and both of these will have a bearing on their management. Patients with osteoporosis may have impaired respiratory function due to vertebral collapse unfavourably altering the dimensions of the thorax. In cases of fibrous dysplasia, patients are at increased risk of being hyperthyroid or having a diabetic tendency. In cases of Paget's disease of bone there is the possibility of cardiac failure and chest deformities.

The best management of osteoradionecrosis is prevention. It is sensible to complete any dental treatment prior to radiotherapy. Osteoradionecrosis may follow at any time after radiotherapy but a third of cases develop in the first 6 months and it is particularly important to avoid extractions in the first 6 months to one year. In the case of pre-radiotherapy extractions, particular care should be taken to ensure that bone is covered by mucosa. Post-radiotherapy extractions should be avoided if possible but if unavoidable trauma should be kept to a minimum. Local anaesthetic without vasoconstrictor should be used and raising of periosteum should be minimised. Any sharp bone edges should be gently trimmed. Soft tissue should be closed accurately and prophylactic antibiotics continued for at least one month. Radiation caries should be controlled by optimising oral hygiene and daily topical fluoride application may also be used.

Osteoradionecrosis

Extracting teeth can lead to necrosis of the bone following radiotherapy to the mandible. Extractions are best avoided in the first year after radiotherapy. A preventative protocol is important.

Drug interactions

A fatal drug interaction may occur if a penicillin is prescribed to a patient taking methotrexate to treat rheumatoid arthritis

SYNDROMIC PATIENTS

A patient with Marfan's syndrome may have lung cysts which predispose to spontaneous pneumothorax. Curvature of the spine in an antero-posterior direction (kyphosis) and lateral direction (scoliosis) may lead to a significant diminution in respiratory function. The aortic and mitral valve incompetence from which these patients often suffer leads to the risk of infective endocarditis. Patients with Ehler's-Danlos syndrome are predisposed to mitral valve prolapse and conduction defects. Patients with ankylosing spondylitis may have decreased mouth opening making intubation difficult as well as causing problems with the treatment itself. Spinal deformity may lead to secondary thoracic deformity and consequent respiratory impairment. These patients may have associated aortic valvular problems.

JOINT DISORDERS

In both osteoarthritis and rheumatoid arthritis, cervical spine mobility may cause problems in positioning the patient appropriately, both in terms of facilitating treatment and anaesthesia. Patients with rheumatoid arthritis will frequently wear a cervical collar. Corticosteroids may be used in both types of arthritis and will often be given by local joint injection and therefore not produce a need for steroid cover. Systemic treatments may be used in some cases, however. The variety of chronic diseases associated with rheumatoid arthritis may be of relevance (Table 1). The TMJ in rheumatoid arthritis often does not produce pain, but there may be decreased movement ie diminished mouth opening.

Patients with gout are at increased risk of hypertension, ischaemic heart disease, diabetes mellitus and renal disease.

Other disorders

In muscular dystrophy patients, cardiomyopathy and respiratory disease should be considered. These patients are also sensitive to the muscle relaxant suxamethonium and are predisposed to developing malignant hyperthermia if a GA is used. Steroid therapy may be of significance when treating patients with cranial arteritis or PMR.

The use of benzodiazepine sedation is contraindicated in patients with myasthenia gravis due to the muscle relaxant properties of this group of drugs.⁸

EFFECTS OF DRUGS USED TO TREAT MUSCULOSKELETAL DISORDERS ON ORO-DENTAL STRUCTURES

The effects of corticosteroids have been discussed in the respiratory paper in this series.

Non-steroidal anti-inflammatory drugs (NSAIDs) may offer some protection against periodontal disease as they interfere with prostaglandin synthesis. COX 2 inhibitors such as celecoxib may cause stomatitis and taste disturbance.

Penicillamine may also cause taste disturbance. This latter drug has been implicated in producing lichenoid reactions and oral ulceration. In addition as it may produce a thrombocytopenia spontaneous gingival bleeding may result.

Ciclosporin is occasionally used in the management of rheumatoid arthritis and this may cause gingival overgrowth in about 30% of patients.⁹

Methotrexate is sometimes used to treat rheumatoid arthritis and may be the cause of oral ulceration. The important point to note about methotrexate is that its toxicity is greatly increased by combined therapy with NSAIDs, corticosteroids and penicillins (including amoxicillin).¹⁰ Combined therapy with these drugs must be avoided as fatalities may occur.

Allopurinol, which is used in the management of gout may cause taste disturbance and oral paraesthesias. In addition it can produce erythema multiforme.

Baclofen, which is a skeletal muscle relaxant, may produce xerostomia.

SUMMARY

Musculoskeletal disorders may alter the management of dental patients in diverse ways. Management may need to be altered because of medication used to combat the disorder eg steroid therapy, the nature of the disorder itself or related conditions eg pulmonary fibrosis as part of the multi-system disorder rheumatoid arthritis.

As with many disorders, a thorough history will lead to safe and effective patient management.

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