Management of the complications of myeloma and side-effects of treatment
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Common problems in myeloma
Myeloma-related complications/symptoms
- Myeloma bone disease
- Pain
- Kidney problems
- Anaemia
- Infections
- Fatigue

Treatment-related side-effects
- Peripheral neuropathy
- Gastro-intestinal problems
- Low blood cell counts
- Fatigue
- Blood clots

Myeloma bone disease
- 70 – 80% of patients have evidence of bone disease at diagnosis

Features:
- Bone pain
- Lytic lesions
- Osteoporosis
- Fractures
- High blood calcium

Normal bone remodelling
Bone breakdown = new bone formation
Bone cell activity in myeloma

Bone breakdown exceeds new bone formation

Effects of myeloma bone disease

High calcium (Hypercalcaemia)

- Kidney damage
- Nausea
- Tiredness
- Constipation
- Confusion

Bone pain

- Back
- Ribs
- Pelvis
- Long bones of arms and legs
- Shoulder

Weakened bones

- Lytic lesions
- Pathological fractures
- Loss of height
- Spinal cord compression

Hypercalcemia

- Sign of bone deterioration
- Can cause kidney damage and abnormal heart rhythms
- Prompt bisphosphonate required
- Other supportive treatments:
  - Adequate hydration
  - Furosemide
  - Steroids

Bisphosphonates – the ‘bone strengtheners’

- Anyone receiving myeloma treatment should receive a bisphosphonate whether or not they have myeloma bone disease

Monthly IV infusion

- Zometa (zoledronic acid)
- Arelia (pamidronate)

Daily tablets

- Bonefos
- Loron (Sodium clodronate)
**Side-effects of bisphosphonates**

- Flu-like symptoms, achy bones
- Nausea
- Gastro-intestinal disturbances
- Osteonecrosis of the jaw (maintain good mouth hygiene, regular dental check-up)
- Impaired kidney function (maintain high fluid intake)

**Pain**

- RADIOTherapy
  - Treats:
    - Localised bone damage
    - Rapid pain-relief
    - Relieves pressure on spine
  - Side-effects:
    - Nausea, vomiting
    - Diarrhoea
    - Skin reactions
    - Fatigue

- Surgical interventions
  - Percutaneous Vertebroplasty
  - Side-effects are rare
Surgical interventions

**Balloon Kyphoplasty**
- Vertebral compression fracture
- Insertion and inflation of balloon
- Cavity filled with bone cement. Stabilises and restores height

Side-effects are rare

**Peripheral neuropathy**

Damage to the nerves, especially hands, feet, arms, legs

Causes:
- Side-effect of treatment (thalidomide, Velcade, vincristine)
- Paraprotein depositing on and damaging the nerves

Symptoms:
- Tingling, ‘pins and needles’, burning
- Altered sensitivity, numbness
- Pain

Peripheral neuropathy - treatment and management

- Neuropathic pain-relief (e.g. gabapentin, pregabalin)
- Dose reduction, frequency or route of administration of treatment
- Report any symptoms as soon as possible
- Vitamin B and folic acid supplement
- Gentle massage, heat/cold packs

Kidney (renal) problems

- Myeloma kidney disease caused by light chain build-up
- Contributing factors – dehydration, high calcium, infections
- Side-effects of treatments – chemotherapy, bisphosphonates, NSAIDs (e.g. ibuprofen) antibiotics
Kidney problems

Symptoms
• Thirst
• Loss of appetite
• Nausea
• Reduced urine output
• Swollen ankles
• Breathing problems
• Blood or protein in urine

Kidney problems - management
Can be reversible if managed and controlled early:
• Treating the myeloma
• High-dose steroids
• Reducing calcium levels
• Keeping well hydrated
• Careful use of drugs
• Dialysis may be needed for some patients

Low blood counts

Red blood cells

Bone marrow

White blood cells

Leukopenia/neutropenia

Platelets

Thrombocytopenia

Symptoms/treatment of low blood counts

Anaemia (low red blood cells)
• Fatigue
• Pale appearance
• Shortness of breath
• Dizziness

Neutropenia (low white blood cells)
• Feeling unwell
• Raised temp, shivers
• Sore throat, cough
• Pain
• Localised swelling

Thrombocytopenia (low platelet counts)
• Increased bruising
• Increased bleeding
• Purpura

• Treating the myeloma
• Blood transfusions
• EPO injections
• Dose reduction if side-effect

• Treating the myeloma
• Antibiotics, anti-virals
• Anti-fungals
• Dose-reduction if side-effect
• G-CSF injections

• Treating the myeloma
• Dose reduction if side-effect
• Platelet transfusion
**Gastro-intestinal disturbances**

**Cause:**
- Side-effect of treatments

**Symptoms:**
- Diarrhoea
- Constipation
- Nausea
- Vomiting

**Treatment:**
- Anti-diarrhoeal drugs
- Laxatives
- Anti-emetics

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**Thrombosis**

**Increased risk of blood clots**
- (deep vein thrombosis, pulmonary embolism)

**Myeloma- or treatment-related**
- (thalidomide, Revlimid)

**Anti-coagulant prophylaxis**
- (Clexane, warfarin)

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**Reducing complications and side-effects**

- Early diagnosis is key
- Report symptoms promptly
- Take preventative measures wherever possible
- Comply with the prescribed treatment
- Talk to your doctor or nurse

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**The future**

- New treatments being developed
  – more targeted, fewer side-effects
- Different ways of administering treatment
  e.g. smaller doses, different route of delivery
- Better supportive/preventive treatment and care