

**Article: Masterclass in Implant Dentistry: Dental implants and medication related osteonecrosis of the jaw (MRONJ).  
Snyman, Todorovic, van Zyl, Page 6**

1. **Which of the following statement/s are incorrect regarding dental implants and medication related osteonecrosis of the jaw:**
  - a Medication-related osteonecrosis of the jaw (MRONJ) is a severe adverse drug reaction, consisting of progressive bone destruction in the maxillofacial region.
  - b In 2014 the nomenclature was changed from bisphosphonate-related osteonecrosis of the jaw (BRONJ) to MRONJ
  - c Surgical trauma has been reported as one of the most important possible risk factors for the development of MRONJ
  - d The safety of dental implant placement in these patients has been shown in all studies
2. **Which of the following statement/s are incorrect regarding the diagnosis of MRONJ:**
  - a It is based on Current or previous treatment with antiresorptive therapy alone or in combination with immune modulators or antiangiogenic medications.
  - b Exposed bone or bone that can be probed through an intraoral or extraoral fistula(e) in the maxillofacial region that has persisted for more than 8 weeks.
  - c A positive history of radiation therapy to the jaws or metastatic disease to the jaws is a prerequisite for diagnosing MRONJ.
  - d A staging system (stages 0-3) has been developed for MRONJ based on the symptoms, clinical and radiological findings.
3. **Which of the following medications are not a risk for MRONJ:**
  - a Bisphosphonates
  - b Denosumab
  - c Tyrosine kinase inhibitors
  - d Ibuprofen
4. **Which of the following are not correct regarding the risk factors for MRONJ:**
  - a The risk of MRONJ is considerably higher in malignancy patients than in osteoporosis patients.
  - b Regardless of indications for therapy, the duration of antiresorptive therapy is a risk factor for developing MRONJ
  - c Dentoalveolar operations are the most common identifiable predisposing factor for developing MRONJ
  - d Tooth extraction is the predisposing event in a maximum of 10% of MRONJ cases.
5. **Which of the following are not correct regarding the risk factors for MRONJ:**
  - a The risk for MRONJ after implant placement among patients treated with denosumab has been reported to be 25.5 percent.
  - b MRONJ is more likely to appear in the mandible than the maxilla but can appear in both jaws.
  - c The risk of developing MRONJ among patients who have been exposed to antiresorptive medications for operations such as dental implant placement or periodontal procedures is unknown.
  - d Pre-existing inflammatory dental disease such as periodontal disease or periapical pathology is considered a risk factor.
6. **Which of the following are correct regarding the prevention of MRONJ in the dental implant patient:**
  - a BPs may interfere with the process of extractions but do not affect osseointegration in implant treatment.
  - b MRONJ is more likely to appear in the mandible than the maxilla so placing implants in the maxilla is regarded as completely safe.
  - c It has been shown that patients who received intravenous BPs could have a much higher failure rate of dental implants than in oral treatment by BPs.
  - d Pre-existing inflammatory dental disease such as periodontal disease or periapical pathology does not affect the development of MRONJ in implant treatment.
7. **Which of the following are incorrect regarding avoidance strategies in MRONJ:**
  - a CTX (Carboxy-terminal collagen crosslinks) test or as it is known in South Africa-Beta-Crosslaps, has been used over the past years as a predictor for risk of MRONJ.
  - b There seems to be no consensus that the Beta-Crosslaps test is conclusive in predicting MRONJ, although a figure above 0.150 ng/ml is seen as safe with little to no risk and below 0.100 ng/ml is high risk
  - c A drug holiday has been shown to increase the CTX levels and may prevent MRONJ, especially if the drug holiday is less than 3-6 months.
  - d Antibiotic cover before, during and after surgery (Amoxicillin and Clavulanic acid) has been shown to prevent MRONJ, especially if used with a drug holiday.
8. **Which of the following are incorrect regarding Bisphosphonates:**
  - a BPs are potent inhibitors of osteoblast-mediated bone deposition, mainly acting by inhibiting protein prenylation in osteoclasts.
  - b When attached to hydroxyapatite within the bone matrix, BPs are encountered by active osteoclasts causing these cells to lose their ruffled border appearance, resulting in apoptosis of osteoclasts.
  - c BPs have a wide therapeutical range including the management of cancer-related conditions, prevention of osteoporosis-related fractures and other metabolic bone diseases such as Paget's disease and osteogenesis imperfecta.

- d Regarding the risk of developing MRONJ, it may depend on the route of administration of BPs (greater for intravenous versus oral), duration of the exposure and lifetime cumulative dose.
9. **Which of the following are incorrect regarding Denosumab:**
  - a Denosumab is a monoclonal antibody that binds the receptor activator of nuclear factor kB ligand (RANKL)
  - b Blocking attachment to the receptor activator of nuclear factor kB (RANK), it inhibits osteoclast differentiation, which results in reduction of osteoclastic bone resorption.
  - c BPs, denosumab does not bind to the bone and its effects on bone modelling mostly diminish within 6 months of treatment cessation.
  - d By preventing the activation of RANK, denosumab increases the osteoclast activity in solid tumours with osseous metastases.
10. **Which of the following are incorrect regarding Angiogenesis inhibitors:**
  - a Angiogenesis inhibitors have an impact on blood vessel formation and the signalling cascade.
  - b They bind to vascular endothelial growth factor (VEGF) leading to the interruption of vascular formation and, possibly, bone necrosis.
  - c By interfering with tumour neo angiogenesis and consequent inhibition of collateral blood flow development, these medications cause the shrinkage of tumours.
  - d This antiangiogenic effect has similar consequences to the blood flow in jaws, resulting in protection against MRONJ.

**Article: Masterclass in Endodontics: Negotiation and Preparation of MB2 Canals in Maxillary Molars- Part 2  
Van der Vyver, Vorster. Page 12**

11. **The main reasons for difficulty when negotiating MB2 canal systems include:**
  - a Presence of pulp stones
  - b Diffuse calcifications
  - c Anatomical variations
  - d Dentinal mud
  - e All of the above
12. **True or False: Sealer and debris created during root canal preparation and obturation of the MB1 canal in previously endodontically treated teeth with missed MB2 canals affected the negotiation of the missed MB2 canals during retreatment.**
  - a True
  - b False
13. **True or False: MB2 canals often join the MB canal at an acute sharp angle that pose no risk for instrument fracture.**
  - a True
  - b False
14. **Conventional stainless steel 08 K-files have a:**
  - a 2.5% progressive taper
  - b 2% constant taper
  - c 3% constant taper
  - d 4% progressive taper
15. **Marton et al reported a mean diameter reported which following mesiodistal diameter mesiobuccal root canal systems at a level 3 mm from the root apex for maxillary molars:**
  - a 0.15 mm
  - b 0.20 mm
  - c 0.25 mm
  - d 0.30 mm
16. **True or False: Conventional size 06, 08 or 10 K-files lack rigidity required to transverse constricted spaces and often buckle when negotiation forces are apically directed.**
  - a True
  - b False
17. **C+ files have which of the following characteristics:**
  - a Machined from heat-tempered stainless-steel blanks
  - b Have a square cross section to improve resistance to distortion
  - c Apical 4 mm of each file size is tapered to make the file more rigid
  - d Pyramidal tip design allows for better negotiation of constricted canals
  - e All of the above
18. **C+ files demonstrate which of the following properties:**
  - a High buckling and low torque resistance with high angular deflection
  - b Low buckling and high torque resistance with low angular deflection
  - c High buckling and torque resistance with low angular deflection
  - d None of the above
19. **True or False: If the MB1 and MB2 canals are separate, the MB2 canal is usually longer compared to the principal canal.**
  - a True
  - b False
20. **Reaching the common part of the canal and foramen from two different angles with preparation instruments can cause:**
  - a Over-instrumentation of the canal
  - b Unnecessary weakening of the root
  - c Eventual over-stripping of the apical part of the root canal
  - d All of the above