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Navigating External Beam Radiation Therapy for Head and Neck Cancer

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1. Squamous cell carcinomas of the head and neck generally arise from the
   a. Submucosal tissues.
   b. Major and minor salivary glands.
   c. Muscular tissues of the oropharynx.
   d. Mucosal lining of the upper aerodigestive tract.
2. The primary radiobiologic principles of radiation, known as the "4 Rs" of radiation therapy, are repair, repopulation, redistribution, and
   a. Recall.
   b. Radionecrosis.
   c. Reoxygenation.
   d. Radiosensitivity.
3. Intensity-modulated radiotherapy (IMRT) differs from conventional radiation planning techniques in that it
   a. More precisely identifies the target volume, so less dose is required for treatment.
   b. Involves the use of implanted fiducial markers to precisely localize the target volume.
   c. Delivers a higher-intensity dose, allowing for shorter periods of time required for daily treatment.
   d. Delivers beams of differing intensities from many angles and can better accommodate irregularly shaped tumors.
4. Mr. L, a 56-year-old man with tumor T3, N2, M0 (tumor, node, metastasis) squamous cell carcinoma of the right base of tongue, is receiving definitive IMRT to a total dose of 7,000 cGy over 35 treatments to the base of the tongue and bilateral neck. He tells you that amifostine has been mentioned to him and asks you if it is necessary. Your best response is
   a. Treatment to the right base of the tongue will spare the left parotid, and amifostine will not be needed.
   b. Should you develop acute xerostomia while on therapy, a short course of amifostine could be added for the last two weeks of treatment.
   c. Most patients do not experience xerostomia at this dose, but if this occurs at any time, pilocarpine and not amifostine will be prescribed to protect your parotid glands from further damage.
   d. Significant risk of parotid dysfunction is likely with this plan, and amifostine is recommended to reduce the amount of xerostomia you may experience following the completion of treatment.
5. Mr. L is ready to begin radiation therapy and has been scheduled for his first amifostine injection (via IV). The nurse should anticipate that he has been given a prescription for
   a. Cetirizine (Zyrtec®, Pfizer Inc., New York, NY).
   b. Oxycodone (OxyIR®, Purdue Pharmaceuticals, Stamford, CT).
   c. Dolasetron (Anzemet®, Aventis Pharmaceuticals, Bridgewater, NJ).
   d. Lisinopril (Zestril®, AstraZeneca, Wilmington, DE, or Prinivil®, Merck & Co., Inc., Whitehouse Station, NJ).
6. Mr. L now has received a total of 24 treatments (4,800 cGy). The radiation therapist asks you to see him today because he is complaining of significant nausea and vomiting despite administration of daily dolasetron, prochlorperazine, and lorazepam. He is unable to remain still during treatment because of nausea. You discuss which of the following options with him to improve his symptoms so he can continue treatment?
   a. Double the dolasetron dose to 100 mg every 12 hours.
   b. Continue radiation treatment, but discontinue amifostine.
   c. Change amifostine to an every other day dosing schedule.
   d. Change amifostine from IV administration to oral administration.
7. Mr. L's wife has a long-standing history of hypothyroidism. She is concerned about her husband developing hypothyroidism following radiotherapy to his neck. The nurse explains to Mrs. L that
   a. This does not occur with IMRT.
   b. The possibility is diminished with the use of amifostine.
   c. This may develop several months after treatment is complete.
   d. The possibility is greatest in the immediate post-treatment period.
8. Mr. S is about to begin a course of primary radiation treatment to a dose of 5,600 cGy for clinical stage T2, N0, M0 laryngeal cancer. In preparing him for treatment, you plan to review which of the following with him?
   a. He will not experience mucositis, and dietary intervention will not be necessary.
   b. He will experience mild mucositis but should be able to tolerate a soft, bland diet.

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