**Chemotherapy:**

**Mechanism of action** → inhibit cell division+protein synthesis

Given in cycles: 1wk then 3 wks rest(BM regeneration) then another dose

**Uses** →

* hematitic malignancies
* conditioning to BM transpalnt

**Classification:**

|  |  |
| --- | --- |
| 1.alkalyting agents 2. antimetabolites like methotrexate 3.antibiotic | 4.mitotic inhibitors 5.DNA repair enzyme inhibitor 6.hormones → breast cancer7. Monoclonal antibodies |

\*folic acid is not a chemotherapy

**Complications:**

|  |  |  |
| --- | --- | --- |
| 1.hair loss 2.BM suppression 3.fatigue 4.nausea and vomiting  | 5.mucositis 6.bleeding tendency.7.infertility  | 8. susceptibility to infection 9. xerostomia 10.abnormalities in the craniofacial development especially children |

**Mucositis:** erythema and ulceration in the oral cavity

**Onset** → 1-2 wks after chemo specially → fluorouracil + cisplatin

**Complication** → septicemia:

,immunosuppressed pt→ ulcer→ exposed bacteria in oral cavity→ septicemia

**Classification:**

|  |  |
| --- | --- |
| Grade 1 | erythema in mucosa and soreness |
| Grade 2  | erythema ,ulcer and able to eat solid food |
| Grade 3 | ulcer but require liquid diet (can't eat anything solid) |
| Grade 4  | unable to eat orally (get nutrient via feeding tube) |

-Grad 1 – 2 → most common

**Management:**

-Folic acid - biologic drugs

- thalidomide - amifostine

Cont. complications.

|  |  |
| --- | --- |
| **Infection:**Specially → candidal infection May develop mucormycosis:  →severe fungal infection cancer-like behaviour(terminal stage cancer)Life threatening  | **Bleeding tendency:**Cause → due to thrombocytopenia Clinical features: Spontaneous gingival bleedingPetechia ecchymosis |

**Chemotherapy dental management**

|  |  |
| --- | --- |
| **Before:** Provide all dental managementPreventive methodsCheck blood indices before surgical procedure | **During:**Cant provide any dental managementExcept: therapeutic or prevent mucositis +Emergencies Treat in between cycles  |

**Guidelines according to blood indices:**

|  |  |  |
| --- | --- | --- |
| **1.platelets:**-if the platelets more than 50: we can treat the pt and we might give him platelet transfusion or desmopressin.-if the platelets less than 50:we can’t treat the pt without given him platelet transfusion otherwise he will have uncontrolled hemorrhage. | **2.WBC**-if the WBC more than 2 :we can treat the pt without prophylactic antibiotics-if the WBC less than 2:we should give prophylactic antibiotic.-f the WBC more than 2 with prolonged procedure:we should give prophylactic antibiotic. | **3 .RBC:**-for RBCs if the patient have anemia “RBS count below 10” which is a contraindication for general anesthesia esp if the patient is a baby we either transfer blood to the patient or we do the treatment under local anesthesia. |

**Radiotherapy:**

**Mechanism of action:** ionizing radiation damage DNA of rapidly proliferating cells

Uses: localized tumors

**Complications:**

**Short term:**

|  |  |  |
| --- | --- | --- |
| 1st week N&V | 2nd weekMucositis and taste change | 3rd weekDry mouth (salivary glands damage) |

* infection susceptibility

**Long term:**

Osteonecrosis

Craniofacial defect ( shape or presence of teeth)

**Mucositis:**

|  |  |
| --- | --- |
| **onset** : 2-4 week  | **Duration:** stops a month after stopping radiotherapy |
| **Influenced by:** 1)the dose 2)radiation field 3)fractionation schedule4)accompanied by chemo 5)smoking | **Management:**1. we can use amifostine(antioxidants)2.hyaluronic acid.3.sparing blocks prevent radiotherapy from reaching the areas that are not affected by cancer . |

**Xerostomia:**

|  |  |
| --- | --- |
| **Onset:** 3rd wk | **Duration**: 2-4 wks after radiation |
| **Effects:** -Salivary secretion-The PH of the saliva -the viscosity of saliva - prone to caries(generalize caries)  -salivary glands infections like sialadenitis and candidiasis | **Managment**:-salivary stimulants(pilocarpine) → have side effects on the heart-saliva substitute (artificial saliva);not available in Jordan and not tolerant by the ptn. |

Cont. radiotherapy complications

|  |  |  |
| --- | --- | --- |
| **Radiation caries:****Pattern:** ant teeth all surfaces, areas not usually affected by caries**Management:**1.fluoride application2. management for the xerostomia3.diet control | **Loss of taste:****Cause:**Loss of taste buds**Duration:**1-2 yrs after radiation**Complications:**Eat more cariogenic foodrisk of caries | **Trismus:****Cause:** fibrosis of masticatory muscles. Radio → end arteries → thickening in vessels wall → fibrosis**Management:** Physiotherapy during radiationDifferentiate the cause fibrosis or cancer recurrence |

**Osteoradionecrosis:**

**Risk influenced by:**

|  |  |
| --- | --- |
| 1) the increase in the dose 2) the duration of radiotherapy 3) trauma or infection  | 4) if he takes chemotherapy with radiotherapy 5) if the ptn is a heavy smoker or alcoholic. |

**Notes:** before radiotherapy we remove torus palatinus → susceptible to trauma → osteonecrosis

**Duration:** months or years **Causes:** not enough vascularity

**Management: S**urgical debridement + AB, No full recovery

**Radiotherapy dental management:**

|  |  |  |
| --- | --- | --- |
| **Before:**Screen patientExtract 1-2 wk before radio atleast | **During**Manage mucositisEmergency treatment | **After**Avoid extractionManage complicationsXerostomia, caries, trismus |

\*\*BM transplant pts treated same as chemo/radio therapy patients