**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 cancer  7. 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 bleeding  Petechia ecchymosis |

**Chemotherapy dental management**

|  |  |
| --- | --- |
| **Before:**  Provide all dental management  Preventive methods  Check blood indices before surgical procedure | **During:**  Cant provide any dental management  Except: 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 week  Mucositis and taste change | 3rd week  Dry 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 schedule  4)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 application  2. management for the xerostomia  3.diet control | **Loss of taste:**  **Cause:**  Loss of taste buds  **Duration:**  1-2 yrs after radiation  **Complications:**  Eat more cariogenic food  risk of caries | **Trismus:**  **Cause:** fibrosis of masticatory muscles.  Radio → end arteries → thickening in vessels wall → fibrosis  **Management:**  Physiotherapy during radiation  Differentiate 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 patient  Extract 1-2 wk before radio  atleast | **During**  Manage mucositis  Emergency treatment | **After**  Avoid extraction  Manage complications  Xerostomia, caries, trismus |

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