NEOADJUVANT CHEMOTHERAPY FOR PATIENTS WITH UNILATERAL OR BILATERAL GROUP A, B OR C RETINOBLASTOMA

CONTEXT AND OBJECTIVES

Intravenous chemotherapy is considered in patients with less advanced retinoblastoma in whom preservation of eye and vision are possible. The aim of systemic chemotherapy is to reduce the tumor(s) in volume and make them amenable to local treatments.

PRE-TREATMENT INVESTIGATIONS

- Ophtalmological examination
  - Fundus examination under anesthesia with RetCam imaging
  - Classification according to ICRB
  - Measurement of each lesion (diameter; thickness by ultrasound = US)
- Pediatric examination
  - Clinical examination with weight, height, body surface
  - Vital signs (cardiac frequency, respiration, temperature)
- Paraclinical investigations
  - In each child at diagnosis (not necessarily before treatment for Group A-C disease):
    - Audiogram or auditory evoked potentials according to age
    - MRI of orbit and brain (focusing on pineal gland in bilateral disease)
- Biological investigations
  - Whole blood cell count
  - Hepatic parameters: ASAT, ALAT, bilirubin total/direct
  - Renal parameters: creatinin, urea

INVESTIGATIONS DURING TREATMENT

- Fundus examination under anesthesia with RetCam images and US before each new treatment cycle
- Clinical examination before each treatment cycle
- Whole blood cell count 1x/week or more, if necessary
- Whole blood cell count, hepatic and renal parameters before each new treatment cycle
- Audiogram or auditory evoked potentials at the end of treatment

INVESTIGATIONS DURING FOLLOW-UP

- Fundus examination under anesthesia with RetCam images and US 1x/month during the first year, then according to the ophthalmologist's decision
- Clinical examination at 1 month of the last chemotherapy with blood control (whole blood cell count, hepatic and renal parameters), then clinically only 1x/3 months during the first year, 1x/6 months during the second, and then according to the treating physician
- Audiogram or auditory evoked potentials at 1 year of the last chemotherapy

DOSES FOR NEO-ADJUVANT CHEMOTHERAPY

The chemotherapy cycles are administered every 21-28 days. They comprise etoposide and carboplatin. The doses are variable according to age and/or weight. The chemotherapy is given only on 1 day.

A) Patients ≥ 1year of age and ≥ 10kg:

- Etoposide 450mg/m^2, Carboplatin 600mg/m^2 on Day 1

B) Patients ≥ 2 months and ≥ 5kg, but < 1 year and < 10 kg:

- Etoposide 15mg/kg, Carboplatin 20 mg/kg on Day 1

C) Patients between 1 and 2 months and < 5kg:

- Etoposide 10mg/kg, Carboplatin 13mg/kg on Day 1

ADMINISTRATION OF NEO-ADJUVANT CHEMOTHERAPY

The chemotherapy is diluted in glucose 5% and given over 1 hour. The dilution for etoposide must be 0.3 mg/ml in order to avoid precipitation, and 0.32mg/ml for carboplatin.

SUPPORTIVE CARE

Antiemetics: Ondansetron 0.15mg/kg/dose, up to 3x/day

PCP prophylaxis: Sulfamethoxazol/Trimetoprim 5mg/kg/d divided in 2 doses, on 3 days per week, during chemotherapy up to 6 months after the last chemotherapy

Transfusions: platelets in case of thrombocytopenia < 50G/l

Antibiotics: in case of neutropenia (ANC < 0.5G/l) and fever of ≥ 38^{5}C, intravenous antibiotics (Piperacillin/Tazobactam 400mg PIP/kg/day divided in 4 doses)

Hydration: specific hydration is not necessary for administration of carboplatin. If clinically indicated, carboplatin administration can be accompanied by 6 hours of hydration at 100ml/m2/h