Treatment of 13q Retinoblastoma IA/Ivit era

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No financial declarations
Off label use of Melphalan, Carboplatin, Topotecan
Summary

• **Problem:**
  • 13q=5-?15% of all Rb
  • No survivors during my fellowship
    – Because of many comorbidities
  • Tolerate systemic chemotherapy poorly

• **This study:**
  • MSKCC patients
    – IA/Ivit (lower doses)
    – 13/14 patients survived (Sepsis w Mets)
    – KM Eye Survival 83%
    – Few side effects IA
      • 1 F/N. 1 Transfusion platelets
    – Systemic chemo: More side effects
    – Ivit: More side effects (ERG)

• **Conclusion:**
  With IA/Ivit most lives, eyes and vision saved but still more sensitive to chemotherapy
This Presentation: Rb with Deletion Syndrome

• What’s Deletion Syndrome?
Quick Review

• Humans have 23 paired chromosomes
Quick Review

• Humans have 23 paired chromosomes
• Numbered by size
Chromosome 13

- Chromosome 13 is the largest acrocentric human chromosome
- Originally part of the “D” Chromosome group
Chromosome 13

• 929 Genes
• One of the lowest gene density of all chromosomes
• Bands identified, numbered
• Gene for Rb is on long arm ("q") in the 1,4 band
  – Band: Stain metaphase prep with Giemsa dye=G Banding
    • Stains regions rich in Adenine (A) and Thymine (T)
Deletion Syndrome (Dq-)

- Deletion involving Rb gene (q14) PLUS adjacent genes
- D Chromosomes (13,14,15) Missing part (-) of long arm (q-)
- 5-15% of retinoblastoma children
- Not inherited
- More often unilateral compared to non deletion Rb
- Depending on the size of the deletion many, many other systemic issues (some life threatening)
Deletion syndrome (?6%)

- **Small deletion:**
  - Within 13q14
  - Macrocephaly
  - Tall stature
  - Obesity
  - Motor/speech delay

- **Medium deletion:**
  - 13q12,3q21,3
  - Facial features, Mild-moderate psychomotor delay
  - Short stature
  - Microcephaly

- **Large deletion:**
  - 13Q12Q31.2
  - Craniofacial dysmorphism
  - Short stature
  - Microcephaly
  - Mild-severe psychomotor delay
  - Hypotonia
  - Constipation
  - Feeding problems
• Dysmorphic features
  – High and broad forehead
  – Short nose
  – Prominent philtrum
  – Thick, everted lower lip
  – Anteverted earlobes
MSKCC Group

- 14 patients
- 7 Unilateral / 7 Bilateral
- 8 Boys/ 6 Girls
- Age Dx: 0.4-24 months
- Birth: 4/14 LBW
- No FH Rb
- F/U: 3.7 yrs mean
Results

- **Patient survival:** 13/14 (Sepsis with metastasis)
- **Ocular Survival:** KM: 83%/2 years (1 Bilateral enucleation)
- **Heme toxicity:** 14 Gr 3, 3 Gr. 4 – One platelet transfusion/ 1 Neupogen
- **ERG:**
  - IA alone: ERG Better 59%/ ERG Worse 18% ERG Same 23%
  - Ivit Melphalan: 29% worse (>25uV)
  - Ivit Topotecan: None worse
Summary

- Rb Deletion syndrome challenging to manage/ comorbidity
- Modern management with OAC and Intravitreal based regimes give less chemotherapy (<1/10) and shorter time (3 vs 6 months) with higher cure rate than past and no radiation
- Ocular survival 83%
- Patient survival 83%
- No second cancers
- Systemic chemotherapy associated with more neutropenia