Medications used in Sarcoma Treatment

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April 21, 2017
How do we treat cancer?

Image credit: http://www.immunooncology.bmsinformation.com/how-io-is-different
Modalities to Treat Cancer

Surgery

Radiation

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Modalities to Treat Cancer

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Chemotherapy

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Chemotherapy terms

• Regimen
  – Base treatment off of evidence (guidelines and clinical trials)
  – Single verses multiple agents
  – Is more better?

• Cycle
  – How often the regimen is repeated/given: 3 weeks, 4 weeks, continuous, etc.
Discovery of Chemotherapy

1959 Cyclophosphamide
1974 Doxorubicin
1983 Etoposide
1987 Ifosfamide
2000 Doxil
2015 Trabectedin
2016 Erubulin
Select Chemotherapies

- Ifosfamide
- Cyclophosphamide
- Dacarbazine
- Gemcitabine
- Doxorubicin
- Liposomal doxorubicin
- Vincristine
- Etoposide
- Docetaxel
- Trabectedin
- Eribulin
Ifosfamide (Ifex®) & Cyclophosphamide (Cytoxan®)

- Alkylators
- Based on nitrogen mustards used in WWI
- Found to target the white blood cells
Dacarbazine (DTIC)

- Alkylating agent and purine analog (adenine, guanine)
Gemcitabine (Gemzar®)

- Nucleoside analog
Doxorubicin (Adriamycin®)

- Originally isolated from a bacteria, *Streptomyces peucetius*
Liposomal doxorubicin (Doxil®)

Hand foot syndrome
Vincristine (Oncovin®)

- Isolated from the leaves of *Catharanthus roseus*

Nerve pain
Etoposide (Toposar®)

- Comes from the mayapple (Berberidaceae)
Docetaxel (Taxotere®)

- semi-synthetic analogue of paclitaxel, an extract from the bark of Pacific yew tree (Taxus brevifolia)
Trabectedin (Yondelis®) & Eribulin (Halaven®)

Trabectedin
- Ecteinascidin-743 from mangrove tunicate
  - one ton of sea squirts produces a gram of drug

Eribulin
- Halichondrin B from Halichondria okadai
Targeted therapy

• Inhibit a more specific target within cells
  – Genetic changes/markers
• Small molecules, antibodies, vaccines
Targeted Therapy

- Imatinib (Gleevac®)
- Sorafenib (Nexavar®)
- Sunitinib (Sutent®)
- Regorafenib (Stivarga®)
- Pazopanib (Votrient®)
- Olaratumab (Lartruvo®)
Immunotherapy

- Nivolumab (Optivo®)
- Pembrolizumab (Keytruda®)
- Ipilimumab (Yervoy®)

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Supportive Care Medications

• Why do we need them?
  – Prevent nausea/vomiting
    • Ondansetron (Zofran®), Prochlorperazine (Compazine®), Promethazine (Phenergan®), Metoclopramide (Reglan®), Dexamethasone, Lorazepam (Ativan®)
  – Prevent infection
    • Antibiotics, Antivirals, Antifungals
  – Prevent allergic reactions
    • Diphenhydramine (Benadryl®), Famotidine (Pepcid®), Dexamethasone
  – Stimulate white blood cell growth
    • Filgrastim (Neupogen®), Pegfilgrastim (Neulasta®), Tbo-filgrastim (Granix®), Filgrastim-sndz (Zarxio®)
  – Treat pain
    • Ibuprofen (Advil®), Acetaminophen (Tylenol®)
    • Morphine, Oxycodone, Hydromorphone, Fentanyl, Methadone
QUESTIONS?