**Antineoplastic Agents 2 Summary**

**TARGETED ANTICANCER THERAPIES**

Unlike cytotoxic drugs targeted anticancer drugs are SPECIFICALLY DESIGNED to target specific molecules present on cancer cells

Divided into: a. Monoclonal antibodies b. Small molecule inhibitors.

MONOCLONAL ANTIBODIES

TRASTUZUMAB: - Monoclonal antibody, directed against HER-2(Herceptin-2) receptor - Useful for the treatment of breast cancer - Dose-limiting toxicity: Cardiotoxicity - Also approved for treatment of stomach cancer/ that of gastroesophageal junction • RITUXIMAB: - Useful for NHL - Other uses include: a. RA b. SLE c. ITP d. CLL e. Autoimmune hemolytic anemia.

**SMALL MOLECULE INHIBITORS**

Usually act by inhibiting enzymes like TYROSINE KINASE, PI3 kinase, MTOR, etc.

Differ from monoclonal antibodies in that “the latter is smaller in size”.

Include: a. TYROSINE KINASE INHIBITORS k. BCL-2 INHIBITORS b. PROTEASOME INHIBITORS l. IDH2- INHIBITORS. c. HISTONE DEACETYLASE INHIBITORS d. MTOR INHIBITORS e. PARP INHIBITORS f. CDK INHIBITORS g. PI3 KINASE INHIBITORS h. APOPTOSIS INHIBITORS i. PROTEIN SYNTHESIS INHIBITORS j. HEDGEHOG PATHWAY INHIBITORS

* TYROSINE KINASE INHIBITORS: - Since all tyrosine kinase inhibitors are metabolized by CYP3A4 enzymes they have the POTENTIAL to CAUSE DRUG INTERACTIONS! - Usually administered ORALLY

IMATINIB: a. Used for chronic phase of CML

b. Drug inhibits tyrosine kinase, activated by abl-bcr fusion (also known as “Philadelphia chromosome”)

c. DOC for CML &GIST(Gastro-intestinal stromal tumor) - DASATINIB& NILOTINIB used in case of IMATINIB RESISTANCE

**HORMONES & RELATED DRUGS**

Include: A. GLUCOCORTICOIDS: Prednisolone, prednisone

B. ESTROGENS: Diethylstilbesterol, ethinyl estradiol

C. PROGESTINS: Medroxyprogesterone acetate, hydroxyprogesterone caproate & megestrol

D. ANTIANDROGENS: Flutamide, enzalutamide & bicalutamide E. GnRH AGONISTS: Goserelin, nafarelin, leuprolide acetate

F. GnRH ANTAGONISTS: Cetrorelix, ganirelix, degarelix & abarelix

G. ANTIESTROGENS: i. SERM : Tamoxifen, doloxifen, toremifene ii. SERD : Fulvestrant iii. AROMATASE INHIBITORS: Aminoglutethimide, formestane, exemestane, anastrozole, vorozole, letrozole

* **ADJUVANT & NEO- ADJUVANT CHEMOTHERAPIES**

In ADJUVANT CHEMOTHERAPY chemo is given AFTER SURGERY/ RADIOTHERAPY

In NEOADJUVANT CHEMOTHERAPY chemo is given BEFORE SURGERY/RADIOTHERAPY

Neoadjuvant chemotherapy is used for cancers of: 1. Bladder 2. Breast 3. Colorectal 4. Esophagus 5. Stomach 6. NSCLC.