

Oncologic Emergencies

Do This, Don't Do that!

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Date: Friday, September 22, 2022

Time: 10:50 - 11:20 AM

Q&A time: 11:50 AM - 12:15 PM

Five Things Oncologists Want Hospitalists to Know

- Neutropenic fever
- Immune adverse events
- Tumor lysis syndrome
- Disseminated intravascular coagulation
- Tissue is the issue

Neutropenic Fever

- Consult #1:
 - “How low does the **absolute neutrophil count (ANC)** have to be for empiric antibiotics?”
 - “Should I add G-CSF* for my patient with **neutropenic fever**?”

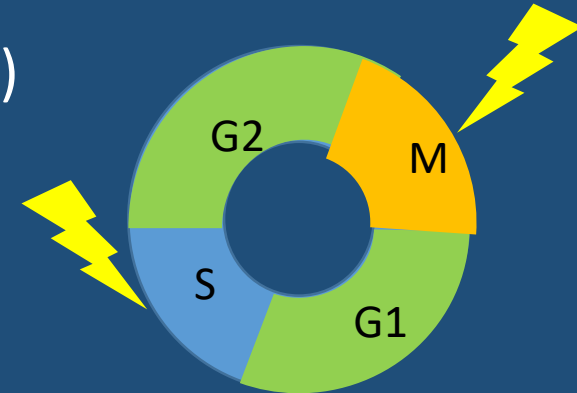
*GCSF (granulocyte colony stimulating factor)

Neutropenic Fever

- Neutropenia: **ANC <1000/uL** and/or neutropenia with anticipation for **ANC <500/uL** in next 48 hours
- Fever **$\geq 100.4^{\circ}\text{F}$** for 1 hour or **$101 \geq \text{F}$**
- Beware of sepsis syndromes, mucositis, diarrhea, or localized infection

Cytopenias

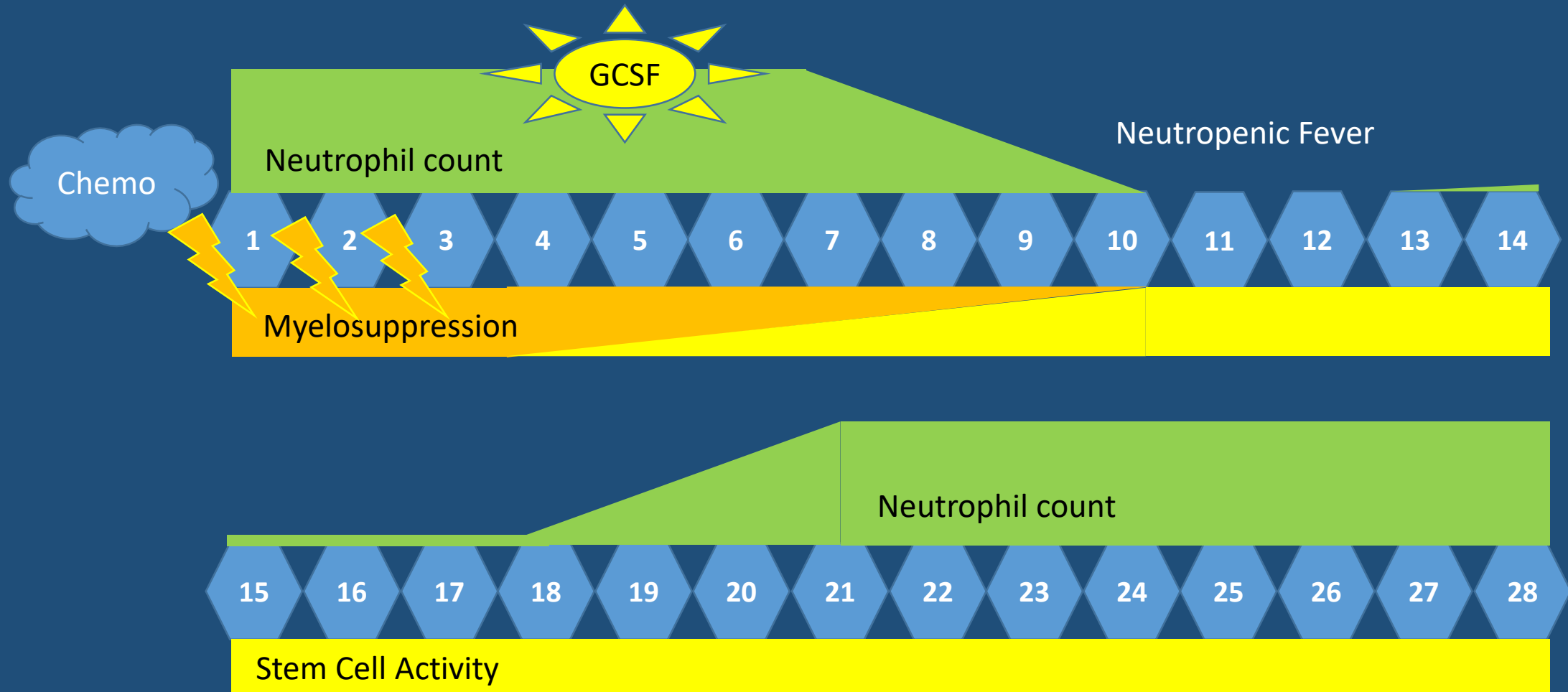
- Hematopoietic stem cells → Neutrophils (8-9 days)
- Cytotoxic chemotherapy arrests cell cycle
 - Neutrophil life span: 1-5 days (nadir **days 8-18**)
 - Platelet life span: 8-9 days (nadir **days 14-21**)
 - Red blood cell life span: 120 days (decrease over time)



Silvestre-Roig C, Hidalgo A, Soehnlein O. Neutrophil heterogeneity: implications for homeostasis and pathogenesis. *Blood*. 2016 May 5;127(18):2173-81. doi: 10.1182/blood-2016-01-688887. Epub 2016 Mar 21. PMID: 27002116.

Welte K, Bonilla MA, Gillio AP, Boone TC, Potter GK, Gabrilove JL, Moore MA, O'Reilly RJ, Souza LM. Recombinant human granulocyte colony-stimulating factor. Effects on hematopoiesis in normal and cyclophosphamide-treated primates. *J Exp Med*. 1987 Apr 1;165(4):941-8. doi: 10.1084/jem.165.4.941. PMID: 3494094; PMCID: PMC2188574.

Chemotherapy Cycle



Neutropenic Fever

- Consult #1:
 - “How low does the **absolute neutrophil count (ANC)** have to be for empiric antibiotics?”
 - **ANC <1000 or expected to drop ANC <500**
 - “Should I add G-CSF* for my patient with **neutropenic fever**?”
 - **Not routinely**

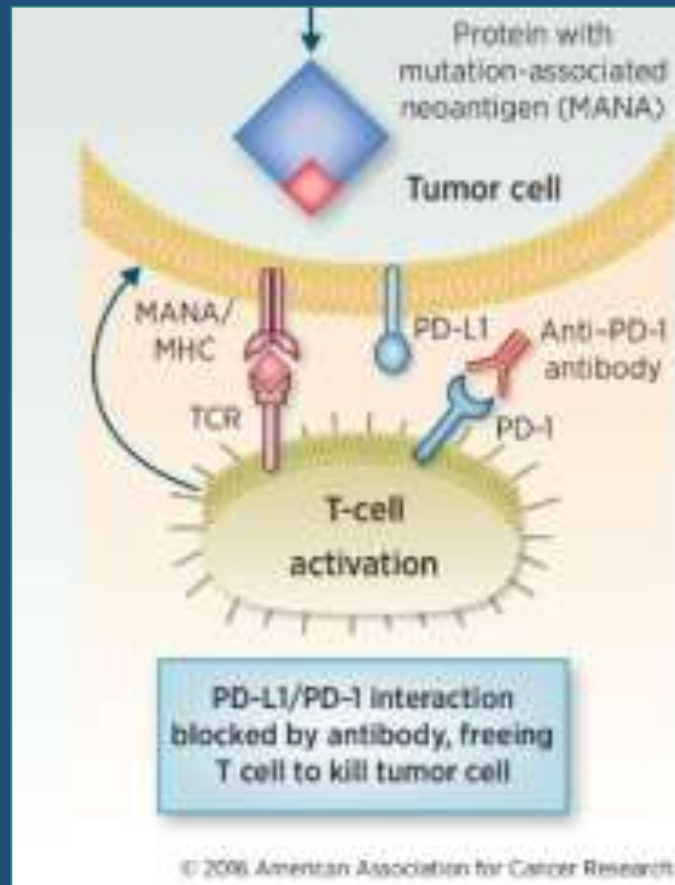
*GCSF (granulocyte colony stimulating factor)



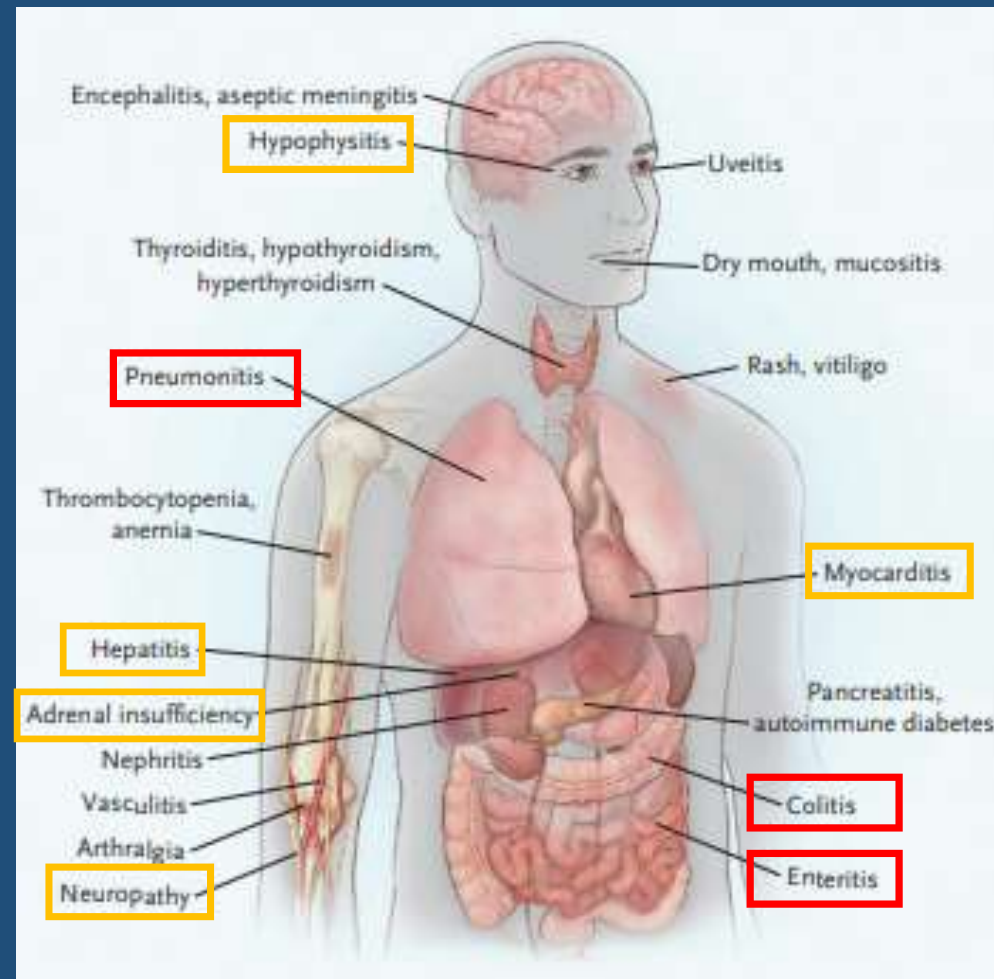
Immune Adverse Events

- Consult #2:
 - “Your patient on **ipilimumab and nivolumab** has diarrhea, anything more than loperamide and fluids?”
 - “Your patient on **pembrolizumab** has cough and shortness of breath, anything more than antibiotics and nebulizers?”

Immunotherapy Mechanism



Immune Adverse Events



Immunotherapy Checkpoint Inhibitors

- Consult #2:
 - “Your patient on **ipilimumab** and **nivolumab** has diarrhea, probably just need loperamide and fluids?”
 - Please check stool studies, consult GI for endoscopy, and start intravenous methylprednisolone at ~1-2mg/kg/day.
 - “Your patient on **pembrolizumab** has cough and shortness of breath, probably just need nebulizers?”
 - Please check CT chest and spirometry, consult pulmonary, and start intravenous methylprednisolone at ~1-2mg/kg/day.

How to look up cancer drugs?

Home > Drug Databases > Drugs@FDA

Drugs@FDA: FDA-Approved Drugs

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Search by Drug Name, Active Ingredient, or Application Number*

Enter at least 3 characters

Search Clear



Tumor Lysis Syndrome

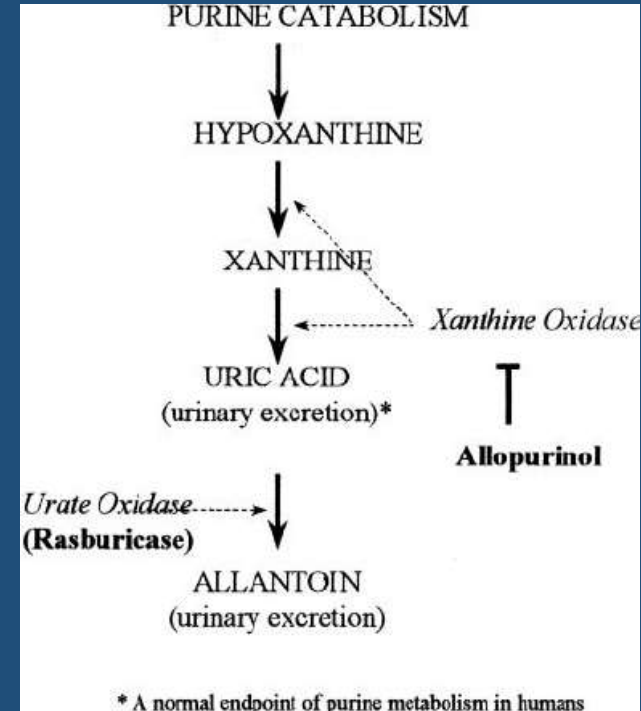
- Case Presentation:
- 28-year-old uninsured man with left scrotal mass presented with shortness of breath. Labs showed **AFP 8000, HCG 120,000**, and LDH 2000.
- Chemistry showed K⁺ 5.3, Cr 1.5, Ca 8.0, Phos 5.4, and **uric acid 12.1**.

Tumor Lysis Syndrome

- Hyperuricemia
- Hyperkalemia
- Elevated creatinine
- Hyperphosphatemia
- Hypocalcemia

Tumor Lysis Syndrome

- Intravenous hydration +/- diuresis
- Allopurinol, rasburicase
- Telemetry
- Calcium gluconate
- Phosphate binders
- Potassium binders, dialysis
- Chemotherapy holds



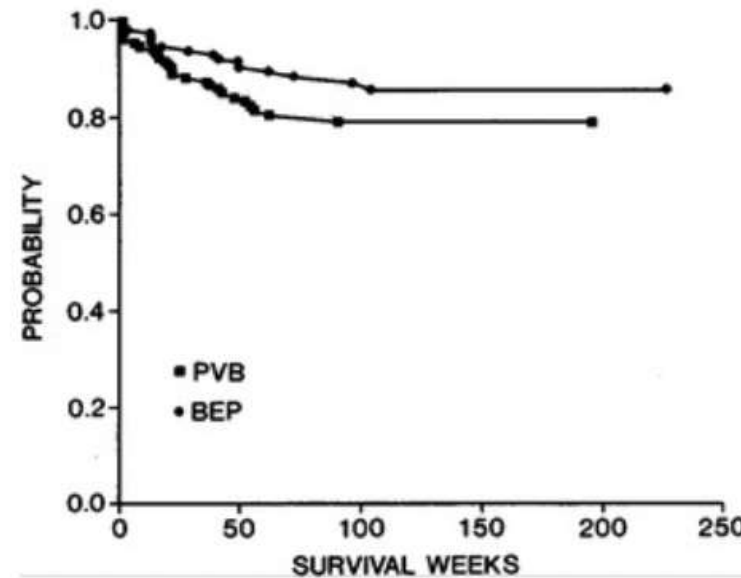
Coiffier B, Altman A, Pui CH, Younes A, Cairo MS. Guidelines for the management of pediatric and adult tumor lysis syndrome: an evidence-based review. J Clin Oncol. 2008 Jun 1;26(16):2767-78. doi: 10.1200/JCO.2007.15.0177. Erratum in: J Clin Oncol. 2010 Feb 1;28(4):708. PMID: 18509186.

Goldman SC, Holcenberg JS, Finklestein JZ, Hutchinson R, Kreissman S, Johnson FL, Tou C, Harvey E, Morris E, Cairo MS. A randomized comparison between rasburicase and allopurinol in children with lymphoma or leukemia at high risk for tumor lysis. Blood. 2001 May 15;97(10):2998-3003. doi: 10.1182/blood.v97.10.2998. PMID: 11342423.

Testicular Germ Cell Tumor

- Two-year survival of 80%

Figure 1.



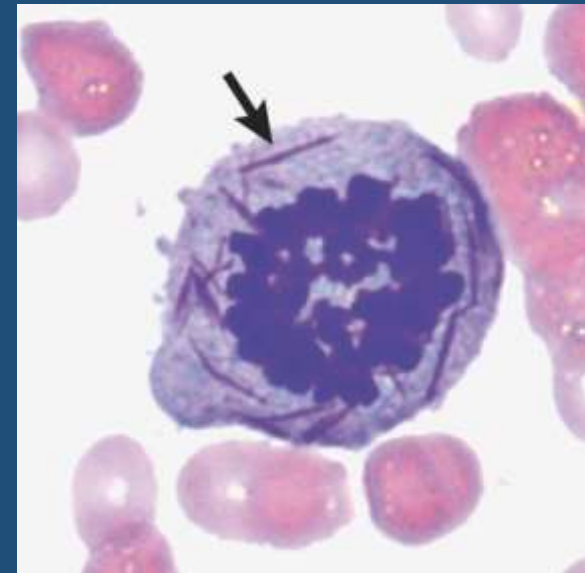
Survival of 258 Eligible Patients Treated with PVB or BEP.

Williams SD, Birch R, Einhorn LH, Irwin L, Greco FA, Loehrer PJ. Treatment of disseminated germ-cell tumors with cisplatin, bleomycin, and either vinblastine or etoposide. N Engl J Med. 1987 Jun 4;316(23):1435-40. doi: 10.1056/NEJM198706043162302. PMID: 2437455.



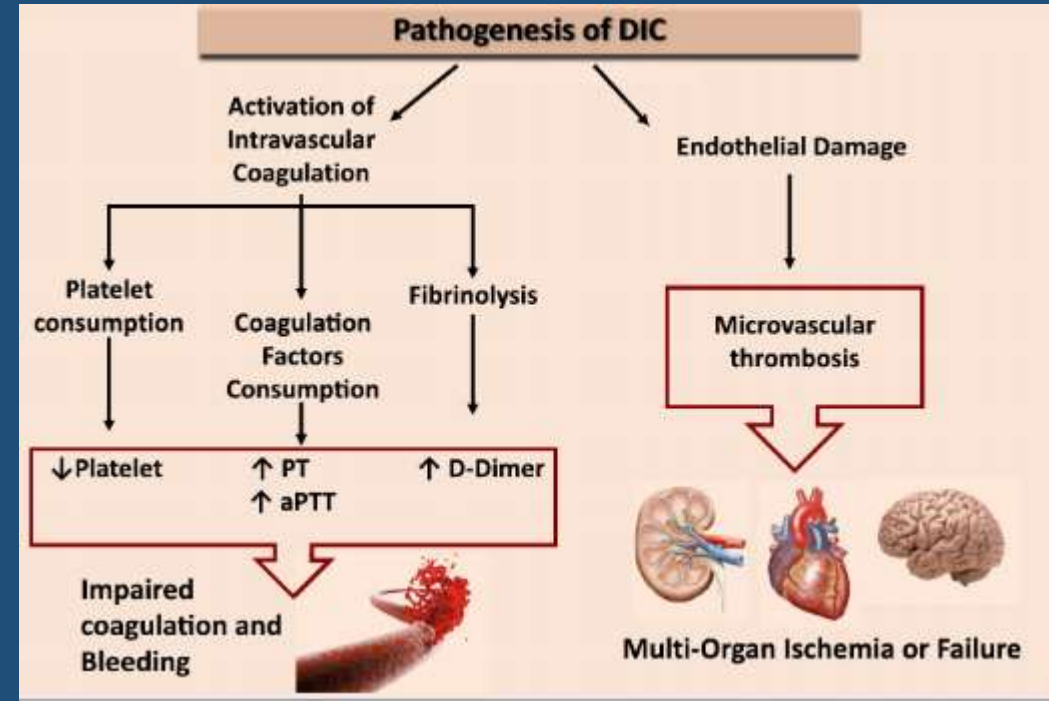
Disseminated Intravascular Coagulation

- Case Presentation:
- 41-year-old woman with malaise and easy bruising, with labs showing WBC 12.1, Hb 10.8, and platelet of 67. Her INR was 2.2, and fibrinogen <50.
- Disseminated Intravascular Coagulation (DIC)
 - Give cryoprecipitate and fresh frozen plasma
- Auer Rods on peripheral smears
 - Give tretinoin (ATRA)



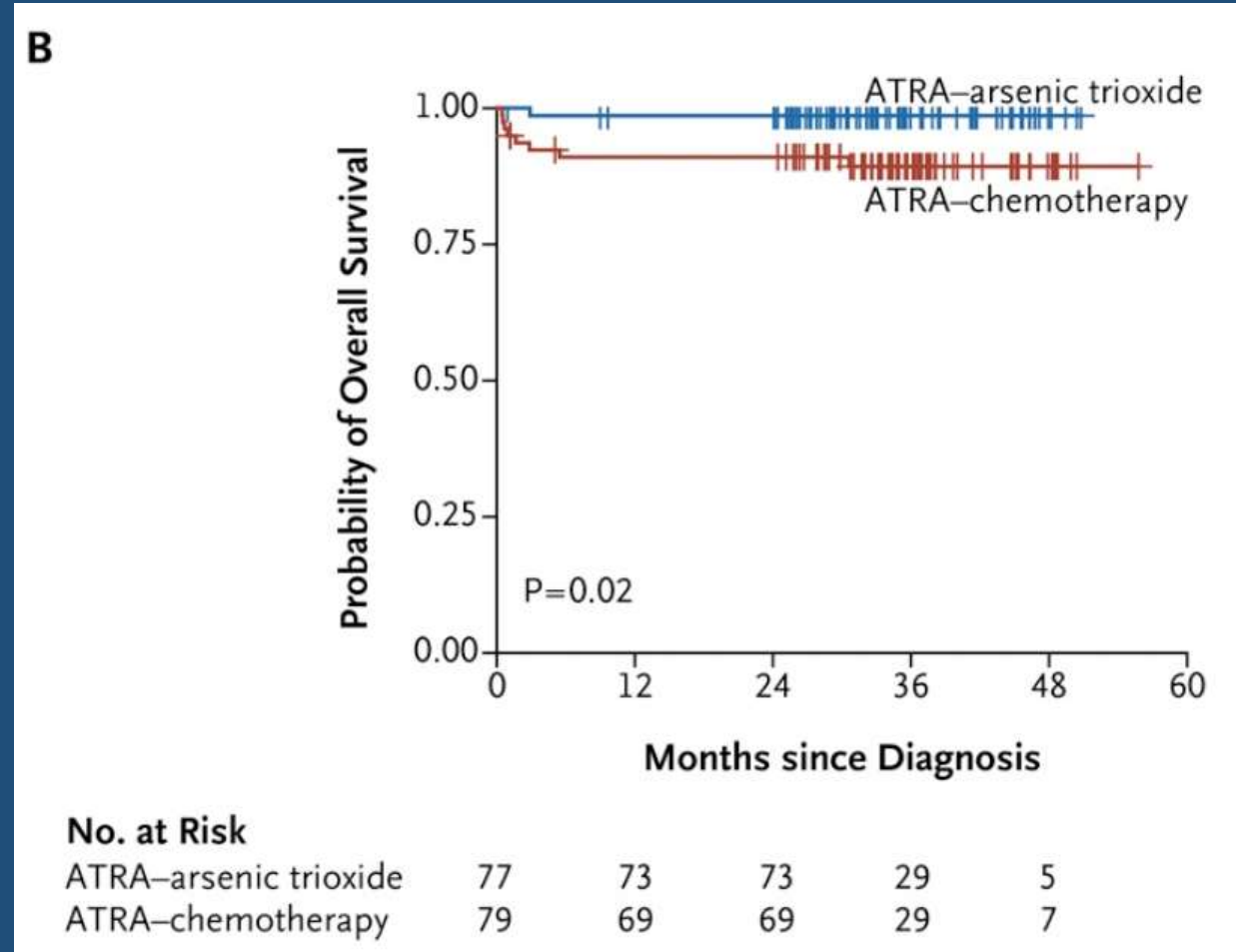
Disseminated Intravascular Coagulation

- Microvascular thrombosis
 - Elevated D-dimer
- Consumption
 - Low platelets
 - Low fibrinogen
- Bleeding
 - Elevated INR



Acute Promyelocytic Leukemia

- Disease-free survival of 97%



Lo-Coco F, et al.; German-Austrian Acute Myeloid Leukemia Study Group; Study Alliance Leukemia. Retinoic acid and arsenic trioxide for acute promyelocytic leukemia. N Engl J Med. 2013 Jul 11;369(2):111-21. doi: 10.1056/NEJMoa1300874. PMID: 23841729.



Tissue is the Issue

- Consult Question #3:
 - “I have a 75-year-old man with limited functional status found to have pancreatic mass on CT. He is **not interested in chemotherapy**. What is the prognosis?”

Tissue is the issue

- Pathologic diagnosis
- Molecular testing
- Cancer related symptoms and complications
- Co-morbidities
- Clinicians generally overestimate prognosis

Tissue is the Issue

- Consult Question #3:
 - “I have a 75-year-old man with limited functional status found to have pancreatic mass on CT. He is **not interested in chemotherapy**. What is the prognosis?”
 - I would suggest calling GI for biopsy
 - Could be benign neoplasm, neuroendocrine tumor, or metastasis
 - Coordinate care conference



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Thank you for your attention!