Zoom Controls

1. Click **Raise Hand** in the Webinar Controls.

2. The host will be notified that you've raised your hand.

3. Click **Lower Hand** to lower it if needed.

1. If the host allows you to talk, you will receive a notification.

2. Your audio settings will now change to a **Mute/Unmute** button. You can still access the audio settings by click on the ^ arrow next to the Unmute/Mute button.
Student Educational Talks Agenda

• NCODA Mission and Vision Statements
  • Sarah Stepanek, PharmD Candidate 2021, Midwestern University

• Blood Cancers Overview
  • Jerimiah Moore, PharmD, BCOP, University of Rochester

• Immune Thrombocytopenia in Adults
  • Chara Reid, PharmD, DuPage Medical Group

• Cervical Cancer Awareness Month
  • Jason Darmanin, PharmD Candidate 2021, The University of Rhode Island
Mission Statement

Our focus is to advance the value of dispensing practices for oncology physicians.

We will provide leadership, expertise, quality standards, and sharing of best practices with all members.

We will deliver positive outcomes through collaboration with all stakeholders involved in the care of oncology patients.
Vision Statement

Our vision is to be the world leader in oral oncology by building a patient-centered medically integrated community whose focus is to innovate the continuity of cancer care so every patient receives the maximum benefit from their cancer treatment.
Welcome Established NCODA PSO Chapters

1. South University (NC & GA)
2. University of Rhode Island (RI)
3. Midwestern University (IL)
4. North Texas University (TX)
5. Washington State University (WA)
6. Texas Tech University (TX)
7. Purdue University (IN)
8. Nova Southeastern University (FL)
9. Massachusetts College of Pharmacy and Health Sciences University (MA)
10. University of Minnesota (MN)
11. University of Toledo (OH)
Welcome “In-Progress” NCODA PSO Chapters

1. Albany College of Pharmacy and Health Sciences (NY)
2. Auburn University (AL)
3. Lake Erie College of Osteopathic Medicine (FL)
4. Marshall University (WV)
5. Oregon State University (OR)
6. The Ohio State University (OH)
7. University of Florida (FL)
8. University of Houston (TX)
9. University of Illinois at Chicago (IL)
10. University of Iowa (IA)
11. University of Mississippi (MS)
12. University of Tennessee (TN)
Welcome all Students!
1,980 + Members and 460 + Practices Strong!

Working together, we become stronger.
Blood Cancers
An Overview

Jeremiah Moore, PharmD, BCOP
Hematology/Oncology Clinical Pharmacy Specialist
UR Specialty Pharmacy
James P. Wilmot Cancer Institute
University of Rochester Medical Center
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Disclaimer

National Community Oncology Dispensing Association, Inc. (NCODA), has developed the Student Educational Talks presentation. This platform represents a brief summary of medications’ uses and therapy options derived from information provided by the drug manufacturer and other resources. This platform is intended as an educational aid and does not provide individual medical advice and does not substitute for the advice of a qualified healthcare professional. This platform does not cover all existing information related to the possible uses, directions, doses, precautions, warning, interactions, adverse effects, or risks associated with the medications discussed in the platform and is not intended as a substitute for the advice of a qualified healthcare professional. The materials contained in this platform are for informational purposes only and do not constitute or imply endorsement, recommendation, or favoring of this medication by NCODA, which assumes no liability for and does not ensure the accuracy of the information presented. NCODA does not make any representations with respect to the medications whatsoever, and any and all decisions, with respect to such medications, are at the sole risk of the individual consuming the medication. All decisions related to taking these medications should be made with the guidance and under the direction of a qualified healthcare professional.
Introduction

• Blood Cancers
  • Affect production and function of blood cells

• Main types of blood cancers
  • Leukemia
  • Lymphoma
  • Multiple Myeloma

ncoda.org
Blood Cancers

- SEER estimates 1,762,450 new cases of cancer.
- Blood cancers (myeloma, leukemia, lymphoma) account for about 10% of all new cancer diagnoses.
Leukemia

• Blood cancer isolated to the blood and bone marrow

• Four main types
  • Acute Myeloid Leukemia (AML)
  • Acute Lymphoblastic Leukemia (ALL)
  • Chronic Myeloid Leukemia (CML)
  • Chronic Lymphocytic Leukemia (CLL)
Acute vs. Chronic Leukemia

Acute (fast growing)
- Rapid onset
- Symptomatic
- Rapidly fatal if untreated
- Primarily immature cells ("blasts")
- Leukocytosis or leukopenia

Chronic (slow growing)
- Slowly progressive
- Most asymptomatic, found on routine labs
- Some survive years without treatment
- Immature & mature cells
- Usually leukocytosis
Lymphoma

- Blood cancer that affects the lymphatic system, abnormal lymphocytes multiply and collect in lymph tissue.

- 2 main classifications
  - Hodgkin’s
  - Non-Hodgkin
    - B-cell
    - T-Cell/NK cell
Leukemia vs. Lymphoma

Leukemia
- Blood cell cancer mostly isolated to the blood & bone marrow
  - Usually does not cause lymphadenopathy
  - Sometimes infiltrates organs
  - Cytopenias due to disease process common

Lymphoma
- Blood cell cancer mostly isolated to the lymph nodes
  - Almost always causes lymphadenopathy
  - Involvement of the bone marrow and organs sometimes occurs
  - Cytopenias due to disease processes less common
Multiple Myeloma

- Cancer of the Plasma Cells
- Hallmarks of the disease
  - CRAB criteria
    - HyperCalcemia
    - Renal impairment
    - Anemia
    - Bone lesions
Questions?

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Hematology/Oncology Clinical Pharmacy Specialist
UR Specialty Pharmacy
James P. Wilmot Cancer Institute
University of Rochester Medical Center
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Immune Thrombocytopenia in Adult Patients

Chara Reid, Pharm.D
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Overview

• Immune thrombocytopenia (ITP) is an immune-mediated disorder in which anti-platelet antibodies attach to platelets. This leads to platelet destruction by macrophages.
• The increase in platelet destruction also leads to a decrease in platelet production due to a decrease in thrombopoietin (TPO).
• Characterized by peripheral blood platelet counts <100x10⁹/L
• Diagnosis of exclusion
  – Rule out any other reasons for low platelet counts

References
Overview

Old terminology prior to 2015
1. Acute ITP – 0 to 6 months since diagnosis
2. Chronic ITP – 6 month or greater since diagnosis

<table>
<thead>
<tr>
<th>Terminology</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly Diagnosed ITP</td>
<td>3 months or less since diagnosis</td>
</tr>
<tr>
<td>Persistent ITP</td>
<td>3 -12 months from diagnosis</td>
</tr>
<tr>
<td></td>
<td>• No spontaneous remission</td>
</tr>
<tr>
<td></td>
<td>• Not reaching a complete response off of treatment</td>
</tr>
<tr>
<td>Chronic ITP</td>
<td>12 months or more since diagnosis</td>
</tr>
</tbody>
</table>

Reference
Website accessed 1/22/2020
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3672858/
Overview

• Incidence
  – ITP occurs in about 3/100,000 adults per year

• Prevalence
  – ITP is more prevalent in women under the age of 70
  – Equal prevalence between genders over the age of 70
  – There are around 60,000 patients currently living with chronic ITP

References
Symptoms and Complications

• Bruising
  – Purpura
  – Petechiae
• Mild bleeding
  – Urine
  – Stool
  – Mouth (gums and teeth)
  – Heavy menstruation
• Severe bleeding
  – Intracranial hemorrhage
• Anemia
• Tiredness
• Infections

References
Treatment Options

1st Line

– Corticosteroids for platelet counts below 30 x10⁹/L
– Observation or active surveillance is no longer recommended but should be considered if the platelet counts are above 30 x10⁹/L and the patient is asymptomatic

Corticosteroid Management

– Monitor for hypertension, glucose levels, insomnia, depression, GI abnormalities, and osteoporosis
– Short courses of 6 weeks or less

References
Treatment Options

2nd Line

– Several different options
– Several different organizations have recommended guidelines
– International Working Group (IWG)
– American Society of Hematology (ASH) 2019 update
Treatment Options

Thrombopoietin receptor agonist (TPO-RA)
• TPO-RA’s mimic the effects of TPO to aid in platelet production
• TPO-RA’s bind to TPO receptor to promote platelet production
• The FDA approved treatments bind at different sites of the TPO receptor and that may account for response difference in patients

Reference
Website accessed 1/20/2020 http://www.haematologica.org/content/104/6/1112
Treatment Options

Eltrombopag

• Multiple indications including chronic ITP in adult patients who have failed their first therapy
• Binds to the transmembrane portion of the TPO receptor and therefore does not compete with endogenous TPO
• 1 tablet daily
  – On an empty stomach
  – 1 hour before or 2 hours after a meal
  – 2 hours before or 4 hours after more than 50mg of calcium or calcium rich foods or supplements
  – Multiple dosing changes recommended based on achieving a platelet count of 50 x 10⁹/L
• Monitor CBC, LFT and signs and symptoms of bleeding

References
Promacta Package Insert 2019
ncoda.org
Treatment Options

Avatrombopag

• Multiple indications including chronic ITP in patients who have had an incomplete response to a previous therapy
• Does not compete with endogenous TPO on at the TPO receptor site
• 1 tablet daily
  – Take with food
  – Various dosing changes based on response of platelet count
• Monitor CBC and signs and symptoms of bleeding

References
Doptelet package insert 2019
Treatment Options

Romiplostim

• Multiple indications including use in adults with ITP when certain medicines or surgery to remove the spleen has not worked
• Competes with endogenous TPO at the TPO receptor site as a TPO mimetic
• Inject once weekly
  – No drug interactions or dietary restrictions
  – Given in the provider office weekly
  – Dosage can be adjusted based on response
• Monitor CBC and signs and symptoms of bleeding

References
Package insert Nplate 2019
Treatment Options

Fostamatinib
• Indicated for the treatment of chronic ITP in adult patients who have had an insufficient response to a previous treatment
• Spleen tyrosine inhibitor that limits immune mediated platelet destruction
• 1 tablet twice daily
  – No food restrictions
  – Dose modifications based on response
  – Drug interactions with strong CYP3A inhibitors or inducers
• Monitor CBC, LFT, Blood pressure

References
Package insert Tavalisse 2019
Treatment Options

Rituximab
• CD20 antibody commonly used off label for the treatment of ITP
• The TPO-RA’s are recommended prior to rituximab therapy

IVIG
• Human immune globin given IV with an indication to treat chronic ITP but has limited durable effects
• May be used once other therapies have been exhausted

Splenectomy
• Removal of the spleen can be effective
• May be an option if patients do not want long term oral or injection therapy
• Proper immunizations prior to the procedure

References
Rituximab package insert
Privigen package insert
Challenges of Treatment

Post-steroid Lines of Therapy: Treatments Are Currently Diverse and Fragmented

<table>
<thead>
<tr>
<th>Treated Patients With Chronic ITP by Line</th>
<th>Predominant Therapy</th>
<th>Most Commonly Used Therapies After Steroids*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd-line</td>
<td>Rituximab</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14%</td>
</tr>
<tr>
<td>3rd-line</td>
<td>TPOs</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14%</td>
</tr>
<tr>
<td>4th-line</td>
<td>TPOs</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10%</td>
</tr>
<tr>
<td>5th-line</td>
<td>No dominant therapy</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15%</td>
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<tr>
<td></td>
<td></td>
<td>22%</td>
</tr>
</tbody>
</table>

*Other therapeutic options used include chemotherapy, immunosuppressants, and undefined therapies.
Data on file, Rigel Pharmaceuticals, Inc August 2018

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Pharmacists Pearls

• Thorough patient counseling especially for the oral products
• Ensure patient understands the side effects and dosing guidelines
• Keep in contact with the provider
  – There are so many variations in dosing
  – Ask for the PLT count
• Remind the patient of the follow up bloodwork since all dosing relies on the current PLT count
• Always double check the dose
• Work with the manufacturers and foundation to get copays as low as possible and decrease any financial toxicity
Questions?

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Cervical Cancer Review

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CERVICAL CANCER

- Cancer begins in the cells lining the cervix; occurring due to DNA mutations.
- Most commonly caused by the human papilloma virus (HPV).
- The cervix is comprised of glandular and squamous cells. They meet in the transformational zone, and this is where most cervical cancer begins.
- These cells may undergo abnormal changes, becoming pre-cancerous.

### Adenocarcinomas
- 7.9%

### Squamous Cell Carcinomas
- 89.1%

- ♂ 13,800
- ⚪ 4,290
- 👩 35-44 YEARS OLD
- 🐧 HISPANIC & AA
SYMPTOMS

pelvic pain
bleeding
vaginal discharge

Rare Symptoms
bowel/bladder issues
back pain
leg swelling
**CERVIX CANCER STAGING**

**NORMAL**

- **UTERUS**
- **CERVIX**
- **VAGINA**

**Stromal invasion of ≤ 3 mm**

1a1. In depth of ≤ 7 mm in horizontal speed

**> 3 mm ≤ 5 mm stromal invasion**

1a2. ≤ 7 mm horizontal speed

**IB1**

- ≤ 4cm lesion confined to cervix

**IB2**

- > 4cm lesion confined to cervix

**IIa**

- Spread beyond uterus without parametrial invasion

**IIb**

- Parametrial invasion

*ncond.org*
CERVIX CANCER STAGING

IIIA
- Involves lower 1/3 rd of vagina

IIIB
- Tumor causing hydroureter or nonfunctioning kidney

IVa
- Tumor invading mucosa of bladder and/or rectum

IVb
- Spread to distant organs or non-regional lymph nodes
SCREENING & PREVENTION

GARDASIL 9 VACCINE
- Cervical cancer is the only cancer we have a preventable vaccine for.
- The HPV vaccine (Gardasil 9) protects against 9 strains of HPV and is recommended as early as 9 years of age.

SCREENING AND ADDITIONAL STEPS
- Two screening tests should be started as early as age 21, the Pap test and the HPV test.
- Additional preventative steps include not smoking and using protection during sexual intercourse.

50%  92%  100%
Drop in incident rate between 1975 - 2015
Survival rate if diagnosed in early stage
Nearly 100% protection with HPV vaccine
BE WISE — IMMUNIZE
PROTECT YOUR CHILD FROM CANCER

HPV vaccine prevents cancers.
- The HPV vaccine protects against 7 strains of HPV that can cause cancer and 2 that cause genital warts.
- Your child’s best defense: Get the vaccine in adolescence before being exposed to HPV.

All adolescents should get the HPV vaccine.
- Recommended for 11- and 12-year-old girls and boys.
- 2 shots before age 15 give full protection.

Older teens and young adults can get immunized, too.
- It’s not too late to start or finish getting the HPV shots.
- Males and females can get the shots until age 26.
- 3 shots are needed for full protection if starting them at age 15 or older.

HPV Facts
Human papillomavirus (HPV) is a common infection. 80% of people in the U.S. will get HPV, most as teens or young adults.
HPV usually clears up on its own, but symptoms can show up years after getting infected with HPV.

HPV can cause:
- Cancers: cervical, throat, anal, penile, and more
- Genital warts
30,000+ people get cancer from HPV every year in the U.S.

Vaccines for your 11- & 12-year-olds:
- HPV
- Influenza (needed every year)
- Meningococcal (meningitis)
- Tdap (whooping cough)

Talk to your child’s doctor about getting the vaccination.

Be Wise — Immunize™
Physicians Caring for Texans
Be Wise — Immunize is a joint initiative led by the Texas Physicians and Medical Student, and the SIIN Alliance. It is funded by St. John Foundation through a major gift from K-e-f and SIIN Health Quality. Be Wise — Immunize is supported by The Medical Association, www.texasmed.org/Immunize

Most insurance companies, the Texas Vaccines for Children Program, and the Adult Safety Net program pay for HPV vaccines.
Source: Centers for Disease Control and Prevention, MD Anderson Cancer Center

ncoda.org
*Vaccination schedule has recently broadened to include adults aged 27-45 years old*
Questions?

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Thank you for attending!

Next NCODA SET will be
Wednesday, February 26th, 2020 at 8 pm EST