Understanding TTP

Alexis L. Koester
Parkland College

Recommended Citation
https://spark.parkland.edu/nsps/145

Open access to this Poster is brought to you by Parkland College’s institutional repository, SPARK: Scholarship at Parkland. For more information, please contact spark@parkland.edu.
Understanding TTP

Alexis Koester
Bio 141 Sect. 001
Dave Wilson

1. What is TTP?
Thrombotic thrombocytopenic purpura is an ultra-rare blood disorder that is potentially life-threatening.
- Between 1.2 and 11 new cases occur every year per million of population.1
- More common in women.
- Lifelong condition; after initial diagnosis, many patients will experience further episodes of TTP (called relapses).2

2. Two Main Types
- Inherited TTP
  - Occurs where the gene that produces ADAMTS13 is faulty.3
  - People are born with the condition.
  - Either have too little ADAMTS13 in their body or the ADAMTS13 that their body produce does not work properly.4
- Acquired TTP
  - The body’s immune system starts producing antibodies that stop ADAMTS13 from working.5
  - No clear reason why patients are affected.

3. Symptoms Caused by Bleeding Include:3,4
- Bleeding of the gums or nose, which may be caused by thrombocytopenia.
- Purple bruises on the skin, called purpura.
- Red or purple dots on the skin, called petechiae, which are caused by bleeding under the skin.

4. Symptoms Caused by Formation of Blood Clots Include:3,4
- Headaches, confusion, and disturbed vision
- Chest pain
- Fatigue, jaundice (yellowing of skin & eyes)
- Dark urine
- Kidney problems

5. Autoimmune Disease
- Immune system attacks healthy cells by mistake.
- Basically, your body is harming itself.
- Can affect many parts of the body.

6. Antibodies vs. Antigens
- Antibodies are Y-shaped proteins produced by white blood cells called B cells of the immune system in response to exposure to antigens.6
- The antibody marks the pathogen (antigen) by killing it or preventing it from entering a healthy cell.7
- Antigens are molecules capable of stimulating an immune response (infected cell).8

7. ADAMTS13 & Platelet Count
- When diagnosed with TTP, platelet count is an important marker.9
  - Normal count: 150-450 billion platelets per liter of blood.
  - During TTP: 20-50 billion platelets.
- Second important marker is ADAMTS13 enzyme levels.
  - ADAMTS13 gene provides instructions for making an enzyme that is involved in blood clotting.10

8. Treatment Options
- Plasma Exchange Therapy
  - The goal is to remove the antibodies that block the ADAMTS13 enzyme and replace the ADAMTS13 enzymes in the blood.11
- Immunosuppressant
  - Aims to stop the immune system from producing new antibodies against ADAMTS13.12
- Follow-Up
  - Patients are monitored on an ongoing basis in an attempt to prevent relapses.
  - Regular blood tests to check platelet count.
  - There are new and emerging treatments nearing clinical practice that target the root cause of TTP.
  - Possibly in the future, a more direct and rapidly acting treatment approach would be to inhibit the binding of von Willebrand factor to platelets.13