When in surgery, platelets are activated because of abrasions. A platelet is a blood cell that is important for blood clotting. When activated, platelets change shape and release a molecule called platelet factor 4 or PF4.

When Heparin, a commonly used drug, is given to surgical patients to prevent blood clotting, it binds to PF4. Once the Heparin binds to PF4, the PF4 molecule changes shape. This change in shape causes an alert signal to go off in the immune system because the substance is no longer recognizable and is thought to be harmful to the body. Antibodies are produced to the Heparin PF4 complex.

The binding of PF4/Heparin/Antibody complexes to platelets can also activate surrounding platelets to change shape and clot blood.

When platelets are both reduced in number AND excessively activated because of Heparin treatment, we call this condition HIT (Heparin-Induced Thrombocytopenia). When platelet numbers are low, blood cannot clot very well and bleeding occurs.

Thrombosis can cut off blood supply to the brain, heart and limbs, resulting in strokes, heart attacks and gangrene.

The immune system gets rid of the platelets to which PF4/Heparin/Antibody complexes are bound.

When platelets are eliminated because of Heparin treatment, we call this condition HITT (Heparin-Induced Thrombocytopenia and Thrombosis).

This change in shape causes an alert signal to go off in the immune system because the substance is no longer recognizable and is thought to be harmful to the body. Antibodies are produced to the Heparin PF4 complex.

CONCLUSION:
Even though HIT and HITT are not common diseases, they still should not be overlooked because they are extremely harmful and often fatal.