NORDIC BIOMARKER

2012-11-01

Hemostasis, thrombosis or coagulation – what's the difference?

Hemostasis is a collective word for several processes that causes *bleeding to stop*. Briefly, there are three major processes that will help bleeding to stop when a blood vessel has been damaged. First, the blood vessel will compress and become narrower (**vasoconstriction**). Second, platelets (thrombocytes) adhere to the damaged walls of the blood vessel, and also to each other, to form a platelet plug (**primary hemostasis**). Third, though the process called **coagulation**, fibrinogen is converted to fibrin. A meshwork of cross-linked fibrin forms around the platelet plug to stabilize it (**secondary hemostasis**); a blood clot has formed.

Hemostasis most often has a positive connotation, as this is the process that helps bleeding to stop. **Thrombosis** (blood clotting), on the other hand, is most often used when there is a problem. This is the process in which a thrombus (blood clot) forms inside a blood vessel, without the rupture of any blood vessel. For instance, when a blood clot has formed that obstructs the blood flow in a vessel such as in the condition Deep Vein Thrombosis (DVT).

So, the absolutely simplest way to define the three words is the following:

hemostasis = vasoconstriction + primary hemostasis + secondary hemostasis

thrombosis = primary hemostasis + secondary hemostasis

coagulation = secondary hemostasis