Hem coagulase-induced thrombotic events

Hem coagulase-induced thrombotic events (HCITEs) are rare but serious medical conditions that can occur as a result of infection with certain bacteria, particularly Staphylococcus aureus. HCITEs are caused by a protein called coagulase, which is produced by some strains of S. aureus.

Coagulase is an enzyme that can cause blood to clot, which is usually a protective response that helps to prevent excessive bleeding. However, when S. aureus bacteria produce coagulase, it can cause the formation of blood clots in the body's blood vessels. These clots can interfere with the normal flow of blood, leading to a range of potential complications depending on where they form.

HCITEs can affect various parts of the body, including the lungs, heart, brain, and other organs. Symptoms may include chest pain, shortness of breath, confusion, and neurological deficits. Treatment typically involves antibiotics to eliminate the underlying bacterial infection, as well as anticoagulant medications to prevent further clotting. In some cases, surgical intervention may be necessary to remove large or problematic clots.

It is important to seek medical attention promptly if you experience any symptoms of HCITEs or suspect that you may have an infection with S. aureus bacteria. Prompt treatment can help to prevent potentially serious complications and improve your chances of full recovery.

Currently, there are case reports of hem coagulase-induced thrombotic events, but no reports of cerebral venous sinus thrombosis being associated with hem coagulase.

Case summary: A 35-year-old woman presented to the outpatient clinic with a severe headache and sudden memory loss with intravenous hem coagulase for postoperative bleeding after uterine fibroids surgery. Abnormal neurological signs included slowed reactions, poor memory, and decreased numeracy. Magnetic resonance imaging and computed tomography scan showed multiple cerebral infarcts, and the infarct area was non-arterial. Brain magnetic resonance venography showed obstruction of the left sigmoid sinus. High-resolution magnetic resonance imaging of the left sigmoid sinus showed an abnormally high signal. The patient was treated with a subcutaneous Low-Molecular-Weight Heparin Sodium injection of 0.4 ml, twice a day (7 days), and oral Warfarin Sodium 3 mg, once a day, while monitoring the international normalized ratio, adjust the warfarin sodium dosage according to the international normalized ratio level. One month later, the patient had no neurological symptoms and her cognitive function returned to normal.

Hem coagulase may be a contributing factor to CVST in patients undergoing uterine fibroids surgery and should be administered intravenously with caution [1)].

1)
Sun B, Liu T, Xu B, Zhang G, Xie K. Hem coagulase induced cerebral venous sinus thrombosis in patients with uterine fibroids surgery. Medicine (Baltimore). 2023 Feb 17;102(7):e32948. doi: 10.1097/MD.0000000000032948. PMID: 36800639; PMCID: PMC9935984.