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DISSEMINATED INTRAVASCULAR COAGULATION

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Disseminated intravascular coagulation (DIC) is a syndrome characterized by systemic intravascular activation of coagulation, leading to widespread deposition of fibrin in the circulation. There are many disorders known to be associated with DIC, of which sepsis, trauma, cancer and obstetric calamities are most frequently occurring. There is ample experimental and pathological evidence that the fibrin deposition in DIC contributes to multiple organ failure. The massive and ongoing activation of coagulation, may result in depletion of platelets and coagulation factors, which may cause bleeding (consumption coagulopathy). Recent knowledge on important pathogenetic mechanisms that may lead to DIC has resulted in novel preventive and therapeutic approaches to patients with DIC. The trigger for the activation of the coagulation system is mediated by several pro-inflammatory cytokines, expressed and released by mononuclear cells and endothelial cells. Thrombin generation proceeds via the (extrinsic) tissue factor/factor VIIa route and simultaneously occurring depression of inhibitory mechanisms, such as antithrombin

and the protein C and S system. Also, impaired fibrin degradation, due to high circulating levels of PAI-1, contributes to enhanced intravascular fibrin deposition.

The diagnosis of DIC can be made by sensitive laboratory tests, however, most of these tests are not readily available in a routine setting. A reliable diagnosis can also be made on the basis of a small series of routine lab tests that can be combined in a scoring algorithm (ISTH-DIC score). Preliminary prospective validation of this score shows promising results.

The cornerstone of the management of DIC is the specific and vigorous treatment of the underlying disorder. Strategies aimed at the inhibition of coagulation activation may theoretically be justified and have been found beneficial in experimental and initial clinical studies. These strategies comprise inhibition of tissue factor-mediated activation of coagulation or restoration of physiological anticoagulant pathways, by means of the administration of antithrombin concentrate, (activated) protein C, or strategies involving (recombinant) thrombomodulin.