PRIMEVIEW

DISEASE INTRAVASCULAR COAGULATION

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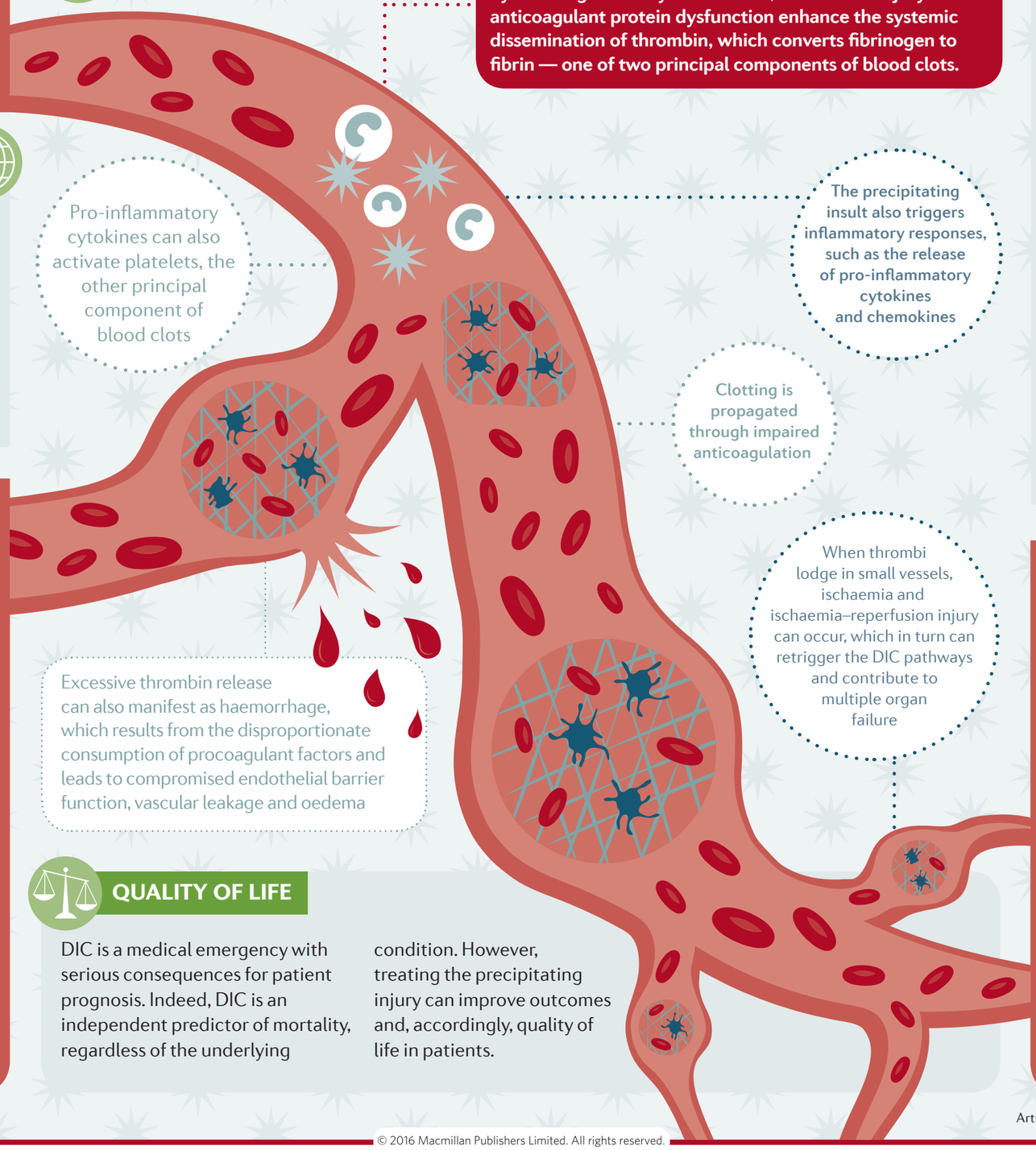
Disseminated intravascular coagulation (DIC) is an acquired syndrome characterized by disordered blood coagulation. Insults or injuries that can lead to DIC can be infectious or non-infectious.

EPIDEMIOLOGY

Infection and/or sepsis are involved in 30–51% of cases of DIC, whereas 45% of patients who experience trauma (for example, head injury or burns) or who have undergone major surgery can develop DIC. Other conditions that can lead to DIC include cancer, obstetrical calamities (such as placental abruption or pre-eclampsia) and severe toxic or immunological reactions (for example, snake bites).

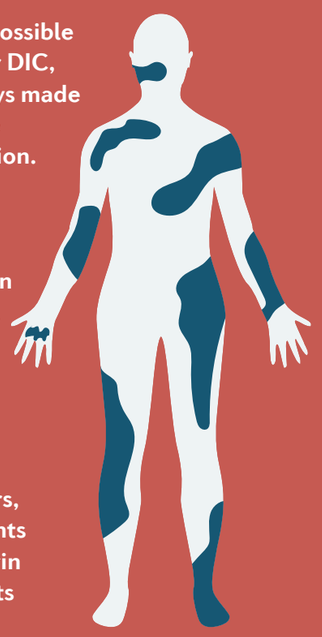
MECHANISMS

Haemostasis is the process of blood clot (thrombus) formation in response to injury and is controlled by the coagulation system. In DIC, endothelial injury and anticoagulant protein dysfunction enhance the systemic dissemination of thrombin, which converts fibrinogen to fibrin — one of two principal components of blood clots.



DIAGNOSIS

Given the range of possible causative factors for DIC, its diagnosis is always made in the context of the precipitating condition. Clinically, patients might present with bruised, discoloured or blood-spotted skin (purpura fulminans), but DIC can only be confirmed through serial measurement of a combination of coagulant and anticoagulant factors, such as platelet counts and the levels of fibrin degradation products and fibrinogen.



QUALITY OF LIFE

DIC is a medical emergency with serious consequences for patient prognosis. Indeed, DIC is an independent predictor of mortality, regardless of the underlying condition. However, treating the precipitating injury can improve outcomes and, accordingly, quality of life in patients.

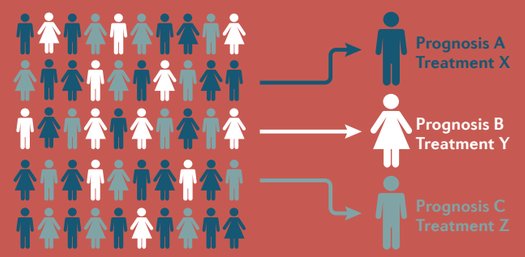
MANAGEMENT

Treating the underlying injury can, in controlled DIC, resolve the coagulation imbalance and prevent DIC from taking hold. However, if the coagulation regulatory system becomes overridden, DIC can become uncontrolled. In these cases, DIC must be treated as a standalone condition, taking into account the specific imbalances in coagulation that the patient exhibits. For example, anticoagulant treatment in those with extensive activation of coagulation can include heparin, although a paucity of high-quality data supports its use. Patients with bleeding can be given platelet or plasma transfusions.

The treatment of severe sepsis with anticoagulant factor concentrates before DIC has been established can lead to deterioration of the systems that maintain haemostasis

OUTLOOK

Current therapies are largely supportive and do not control outcomes, such as organ dysfunction or mortality. Future research that examines the specific effects that coagulation imbalance in DIC have on each organ might contribute to organ system-specific treatments. However, for this approach to be clinically useful, biomarkers to identify and stratify patients who are at risk of DIC — and to predict the manifestations of DIC in these patients — will also need to be developed.



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