MANAGEMENT OF DIC: A RATIONAL APPROACH

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Disseminated intravascular coagulation (DIC) is a severe thrombo-inflammatory syndrome characterized by systemic activation of coagulation, excessive fibrinolysis, neutrophil extracellular trap (NET) formation, and endothelial injury. It progresses from an early hypercoagulable phase—marked by widespread microvascular thrombosis—to an advanced consumptive phase with hemorrhage and multiorgan failure. Thrombosis and bleeding often coexist, with fibrinolysis typically secondary to underlying triggers rather than primary. Unlike a distinct disease, DIC resembles acute respiratory distress syndrome (ARDS) as a dysregulated host response. Sepsis remains the most common risk factor, prompting the International Society on Thrombosis and Haemostasis (ISTH) to endorse sepsis-induced coagulopathy (SIC) for early identification in septic patients. SIC scoring integrates platelet count, prothrombin time, and fibrinogen levels to enable rapid bedside diagnosis, addressing the absence of a gold-standard biomarker. Key pathophysiological mediators include thrombin-antithrombin (TAT) complexes, which reflect thrombin burst, and plasminogen activator inhibitor-1 (PAI-1), which imbalances fibrinolysis by inhibiting tissue plasminogen activator. Elevated TAT and PAI-1 levels show promise for early DIC detection, though validation in prospective trials is needed. Management prioritizes treating the underlying cause. Supportive measures are phase-specific: low-molecular-weight heparin in non-hemorrhagic early DIC to mitigate thrombosis; antifibrinolytics for hyperfibrinolysis; and blood products including fresh frozen plasma, cryoprecipitate, fibrinogen concentrates, and platelets for bleeding phases. Anticoagulant trials (e.g., antithrombin, recombinant thrombomodulin) yield mixed results, underscoring the need for personalized, biomarker-guided strategies to improve outcomes in this high-mortality condition.

Keywords: Disseminated intravascular coagulation, DIC, Sepsis-induced coagulopathy, Thrombo-inflammation

Date of submission: 11.04.2026
Date of acceptance: 29.04.2026
DOI: https://doi.org/10.3329/bjm.v37i20.89605

Citation: *Kabir AL. Management of DIC: A Rational Approach. Bangladesh J Medicine 2026; Vol. 37, No. 2(1): pp. 197*

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