In South Africa, trauma is collectively the second greatest overall cause of mortality and haemorrhage, the major cause for mortality after injury. Major trauma, particularly hypoperfusion, is a potent stimulus for the systemic inflammatory response. Conceptually, damage-control resuscitation (DRS) is coupled with damage-control surgery.

Damage-control surgery is abbreviated surgery to stop bleeding and contamination, based on the degree of physiological compromise and resuscitation, followed by definitive surgery after physiological stabilisation. It is the standard of care for patients suffering the deadly triad of hypothermia, acidosis and coagulopathy. The hypercoagulability induced by acute trauma is rapidly replaced by hypocoagulability, and induced by hypoperfusion, hypothermia, acidosis, and dilution, due to infused crystalloids and colloids.

DRS consists of blood component therapy directed toward correcting the deficit in oxygen delivery (DO₂) and the coagulation deficit. Crystalloids and artificial colloids are limited to initiating volume resuscitation. DRS is initiated using physiological parameters, without waiting for results of coagulation studies. Criteria include hypoperfusion (systolic BP < 90 mmHg at any time before or during initial assessment in the emergency room), acidosis (serum lactate > 4 mmol/L, hypothermia (core temperature ≤ 34°C) and magnitude of injury (major truncal injury). The evidence for the use of DRS is at best at level two. However, it is hard to argue against reports of up to 67% improvement in survival.

Components used include fresh frozen plasma, packed red cells and platelets (ratio 1:1:1). Recombinant factor VII is usually added in resource-rich environments, with some benefit for limiting packed cell transfusion and the incidence of multi-system organ failure (MSOF), but not mortality. Tranexamic acid did show survival benefit at minimal cost. Component therapy should be guided by monitoring the coagulation system. In the absence of the gold standard of thromboelastography, activated partial thromboplastin time (APTT) and partial thromboplastin time (PTT) seem to be the best alternatives, while fibrinogen levels will guide the need for cryoprecipitate.

**Bibliography**