The DIC score is of prognostic value in COVID-19 pneumonia

Data published by haematologists from Wuhan, China indicates that abnormal coagulation parameters can be a useful predictor of prognosis in pneumonia due to COVID-19 (Tang et al, 2020). Although the numbers in this study are small, the results demonstrate that 71% of non-survivors had overt disseminated intravascular coagulation (DIC), as demonstrated by the International Society on Thrombosis and Haemostasis (ISTH) DIC score, compared with only 0.6% of survivors. The DIC score is calculated from measurement of the platelet count, D-dimer, fibrinogen and prothrombin time (Taylor *et al*, 2001) as shown in this table:

Parameter	**Score**
Platelet Count	
>100 x 10^9/L	0
50-100 x 10^9/L	1
<50 x 10^9/L	2
D-dimer	
No increase	0
Moderate increase (1 – 10 times upper limit of normal)	2
Strong increase (> 10 times upper limit of normal)	3
Fibrinogen	
> 1.0 g/L	0
≤ 1.0 g/L	1
Prothrombin time prolongation	
< 3 s	0
3 – 6 s	1
> 6 s	2
Overt Disseminated Intravascular Coagulation	**≥ 5**

The original score allowed for alternative markers of fibrin formation and breakdown, such as fibrin degradation products, in place of the D-dimer. There was also a subjective element to this component of the score and definitions listed in the table above were used during a subsequent validation study (Bakhtiari *et al*, 2004). It is entirely expected that the presence of DIC would be correlated with more severe disease and mortality, but what is striking about these results is the more marked difference in frequency between survivors and non-survivors compared with other diseases associated with DIC. For comparison in the placebo arm of the PROWESS study 39% of non-survivors at 28 days had overt DIC at presentation compared with 24% of survivors (Dhainaut *et al*, 2004).

Haematologists should support use of the score in the clinical assessment of patients hospitalised with proven COVID-19 infection. This may involve modifying laboratory order sets so that when a coagulation screen is requested in an affected patient D-dimer and fibrinogen are automatically added to the prothrombin time. Adding a laboratory comment stating the DIC score and whether there is overt DIC or not may help clinicians managing the patient.

The management of DIC in these patients should follow existing guidance (Levi *et al*, 2009).

From the BSH Haemostasis and Thrombosis Task Force, 18-03-2020

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