Insight Early elimination of MRSA prevents induction of systemic inflammatory reactions and activation of coagulation

Anti-inflammatory, anti-coagulant, anti-biotic?

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Systemic activation of inflammatory cascades and coagulation are a hallmark in the pathogenicity of infectious diseases that significantly contribute to morbidity and mortality of severely infected patients. Complications are often evoked by an over-reaction of host defense systems to the infection and thus many antimicrobial drugs have been developed that have anti-inflammatory or anti-coagulant properties (1). Though some of these substances were effective in animal model of severe infectious diseases, most of them failed in clinical trials. The latest sad example is Drotrecogin alfa (Xigris), which was withdrawn from the market in 2012 (2).

In this issue of Thrombosis and Haemostasis, Franks et al. show that the early elimination of methicillin-resistant Staphylococcus aureus (MRSA) prevents the induction of systemic inflammatory reactions (cytokine storm) and activation of coagulation (3). In a series of elegant in vitro, ex vivo, and in vivo experiments, the authors convincingly show that early, but not late, administration of antibiotics can protect from deleterious systemic complications. Thus, it seems that timing is a critical issue which determines whether the amplitude of the host response remains in a physiologically beneficial range or turns into a life-threatening enemy. The findings have significant clinical implication especially as for every hour that proper treatment is delayed the mortality rate in sepsis patients can increase up to 7.6% (4).

Do the results by Franks et al. imply that patients should be prophylactically treated with antibiotics as soon as there is a slight risk that they may develop sepsis? The answer is obvious, since uncontrolled administration of antibiotics bears the risk that resistance will spread more rapidly. Indeed the data clearly imply that the early recognition of sepsis patients is important and this also implicate that there is an urgent need for fast, robust, and reliable diagnostic tools.

Conflicts of interest
None declared.

References

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