FUNGAL INFECTIONS AS AN IMPORTANT CAUSE OF SEVERE SEPSIS

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Severe sepsis affects over 750,000 Americans annually with a mortality rate of 30-50%. This process is associated with a significantly increased inflammatory response and coagulapathy which leads to multi organ system failure and death. Although previously associated with gram negative bacterial infections recent studies have delineated the equal importance of gram positive organisms. Fungal infections are known to cause severe sepsis but the importance of their role is not clear. Fungal infections are often considered more indolent in nature and mortality (M) is ascribed to the underlying disease and infirmity of the patient. In the recently published PROWESS Study, drotrecogin alfa (activated) (DAA) was shown to be effective in reducing absolute mortality from severe sepsis by 6.1% compared to placebo. Analysis by infecting organisms for DAA group showed placebo mortality from gram positive infections at 30.4% and gram negative mortality at 28.8%.

Fungal infections (N=62) had a placebo mortality of 56.3% but a 6.3% decline in mortality in the treatment arm similar to the other infectious groups. Biomarker analysis showed that D-Dimers were similarly elevated in gram negative and fungal infections compared to gram positives. Protein C levels were similarly reduced at 41% of normal. Protein S levels were lowest in fungal infections and IL-6 levels were highest compared with other infectious causes. This suggests a particularly high inflammatory response and coagulopathy in this group of fungal infections with severe sepsis. APACHE II scores were similar by infection type but the higher mortality suggests that the fungal infection and not the underlying patient condition contributed to the excess mortality. Fungal infection has been underappreciated as a cause of severe sepsis. This data suggests the importance of early diagnosis and treatment of fungal infection as the key to preventing fungal sepsis complications.