Male and female immune responses to SARS-CoV-2 substantially differ.

A recent paper in Nature has shown some key differences in immune responses during COVID-19 between males and females. The authors found that in SARS-CoV-2 infected males, levels of proinflammatory chemokines and cytokines, such as IL-8, IL-18 and CCL5 were higher and correlated with elevated non-classical monocytes. In females, they found higher levels of activated CD8 T cell responses. When they examined the clinical trajectory of disease severity, poor T cell responses were associated with progression of disease in male patients and higher innate immune cytokine levels were associated with worsening of COVID-19 disease in female patients. The authors conclude that "These data indicate key differences in the baseline immune capabilities in men and women during the early phase of SARS-COV-2 infection, and suggest a potential immunological underpinning of the distinct mechanisms of disease progression between sexes." Do these results promote the idea that potential vaccines need to elevate T cell responses to SARS-CoV-2 for male patients, but not necessarily for female patients, who might require therapies that dampens the initial innate immune response?

Journal Article: Takahashi et al., 2020. Sex differences in immune responses that underlie COVID-19 disease outcomes. Nature

Summary by Clive Gray