Gender differences in sepsis: genetically determined

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Abstract

In the pathogenesis of sepsis, tumor necrosis factor (TNF) release and host reaction may be genetically determined as demonstrated for TNFbeta Ncol polymorphism. Gender differences are considered as another important prognostic variable in patients with sepsis with better survival for women. The effect of sexual dimorphism on the genetic background of sepsis, however, is unknown. In a
Medically, human gender is determined by asking an individual, "How would you describe your gender identity?" I think you're asking about physical or bodily sex, which is more complicated than some people think. There are at least four independent ways that individual humans end up with their various "sex-determination methods" (biological sex, chromosomal sex, anatomical sex) disagreeing with one another.

A prospective study at two university hospital surgical intensive care units (Bonn and Kiel), the role of the genomic marker TNFβ Ncol polymorphism was evaluated with respect to gender. Two-hundred and one patients (68 women and 133 men) with severe sepsis were evaluated. A fragment of genomic DNA including the polymorphic site of the restriction enzyme Ncol was amplified by means of polymerase chain reaction. The genotype of each patient was determined after Ncol digestion of the amplified product. The genotype distribution of patients homozygous for TNFB1, heterozygous or homozygous for TNFB2 was comparable between men and women with severe sepsis. In women, no difference in survival rate was found between the different genotypes, while mortality rate was significantly increased in men homozygous for TNFB2 compared with the other genotypes (P < 0.05; P < 0.01, chi2 test). Overall, survival rate was higher for women (P < 0.05) but was not significantly different between men and women with respect to genotypes (P = 0.07 for TNFB2/B2). Poor prognosis of surgical sepsis can be determined by male gender and the genomic marker TNFβ Ncol polymorphism which should be considered for further therapeutic interventions in sepsis.