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Possible role of estrogen receptors in gender susceptibility in the development of chronic infections and liver cancers

C tudies have shown that there is a sex bias in the development of chronic infections that might lead to malignant Otransformation. Host immune responses in women with different levels of hormones such as estrogen have an influence on urinary tract infections. However, at present there is very limited understanding of contribution of hormones such as estrogen or its receptors (ERs) in modulating host-pathogen interaction in infectious disease pathogenesis. We studied estrogen and ER in their modulation of bacterial or viral pathogenesis in the liver. Hepatitis C virus (HCV) related cirrhosis is the prime cause of rising incidence of hepatocellular carcinoma (HCC). Chronic HCV progresses more rapidly in men than women. Predominance of HCV-related HCC in males highlights possible significance of estrogen related etiology in HCC. Role of estrogens and ERs is poorly understood in HCV related HCC pathogenesis. We studied liver tissues including HCV cirrhotic, HCV-related HCC (HCC) and normal donor explant livers for the expression of ERs (ERa and ERB) at mRNA and protein level. ERa and ERB co-expressed differentially at mRNA and protein levels in all groups. Sub-cellular distribution of ERa and ERß protein levels were determined in cytosolic and nuclear fractions of normal, HCV and HCC tissues. Compared to normals, a significant increase in cytosolic levels of ERa was observed in HCV and HCC tissues. However, compared to normals, the nuclear expression of ERa was increased only in HCV and HCC patients. Higher nuclear expression of ERa in HCV and HCC suggests involvement of ERa in HCV associated HCC. Further studies on the role of estrogen and ERs involvement in HCVrelated HCC pathogenesis may help us develop novel therapeutic approaches against HCC development.

Biography

Anil Kaul was graduated from Madras Medical College in Medicine, King Georges' Medical College in Dentistry and in Public Health from University of Minnesota. He currently serves as the Director of High-Complexity Clinical Laboratories and a Faculty at Oklahoma State University-Center for Health Sciences. He has been awarded 6 patents and has published more than 50 scientific papers. He has served as Senior Health Advisor to the US Department of State and received "Expeditionary Service Award". In 2014, he also received "Lifetime Achievement Award" at Global Health Summit and in 2008 he was named as Sony's Scientist of the Year Award

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