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Impact of hepatitis-C virus infection on neutrophil oxidative burst function in hemodialysis patients

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Polymorphonuclear leukocyte (PMN) functions have been studied extensively in hemodialysis (HD) patients; however, results are contradictory and the mechanisms that modulate phagocytosis and oxidative burst are not completely understood. Hepatitis-C virus (HCV) is a frequent complication of HD that may be associated with disturbed PMN function; however, the impact of HCV infection on neutrophil oxidative burst function in HD patients is unknown. We investigated neutrophil oxidative burst function in 24 HD patients (15 HCV-positive and 9 HCV-negative patients) before and after dialysis. HCV-RNA was detected by RT-nested PCR while, quantitative measurement of oxidative burst function was assessed by flow cytometry. Neutrophil oxidized burst function was significantly diminished in HD patients as compared to controls ($P=0.001$, oxidized PMN (%); $P=0.02$ mean fluorescence intensity, MFI) and in pre-dialysis as compared to post-dialysis samples (oxidized PMNs (%): 60.5 ± 3.2 vs. 72.1 ± 3.9 , $P=0.02$); (MFI: 352 ± 42 vs. 500 ± 50 , $P=0.03$). Alteration in neutrophil oxidative burst function in the pre-dialysis samples was significant in HCV-positive patients as compared to HCV-negative patients (oxidized PMNs (%): 50 ± 2.9 vs. 63 ± 5.1 , $P=0.02$); (MFI: 291 ± 31 vs. 438 ± 64 , $P=0.006$). Marked reduction in *E. coli* induced burst in pre-dialysis samples compared to post-dialysis was found in HCV-positive when compared to HCV-negative patients (oxidized PMNs (%): 50 ± 2.9 vs. 74.8 ± 4.7 , $P=0.001$), (MFI: 291 ± 31 vs. 493 ± 63 , $P=0.002$). In conclusion, a possible role of concomitant HCV infection in alteration of neutrophil oxidative burst function is highly suggested.

Biography

Gehan Saddik Abd El Hamid El Hadidy has completed her MD from Suez Canal University, Egypt. She is presently working as a Professor of Medical Microbiology and Immunology in Faculty of Medicine, Suez Canal University. She has published around 9 papers in reputed journals.

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