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Studies of skin-window exudate human neutrophils: complex patterns of adherence to serum-coated surfaces in dependence on FMLP doses.

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Human neutrophils were isolated both from peripheral blood (PB) and from aseptic inflammatory exudates obtained by the Senn's skin-window (SW) technique. The respiratory burst (O2- release) and the adherence to serum-coated wells of culture microplates was investigated using a simultaneous assay. Unstimulated PB resting neutrophils did not produce a significant amount of O2- and were incapable of adhering to serum-coated plastic surfaces, while unstimulated SW neutrophils showed augmented adhesion to serum-coated culture wells. SW neutrophils were primed to enhanced FMLP-dependent O2- release in response to n-formyl-methionyl-leucylphenylalanine (FMLP). Adhesion of SW neutrophils was significantly decreased by addition of low doses (10(-10)-10(-8) M) of FMLP (from 17.1% to 8.4%, $P < 0.01$, $N = 12$), while fully activating doses (> 5 x 10(-8) M) of FMLP induced a marked increase of the cell adhesion, more pronounced in SW (39.2%) than in PB cells (27.2%). Low (5 x 10(-9) M) and high (5 x 10(-7) M) FMLP doses induced morphological changes (polarization) and actin polymerization in the neutrophils from both sources. Biphasic dose-response curves of SW neutrophil adherence were observed using FMLP, but not using concanavalin A or phorbol myristate acetate as stimulatory agents. Therefore, the adherence of SW cells appears to be regulated in a complex fashion, nonlinearly dependent on the chemotactic peptide doses and specifically regulated according to the receptors involved.

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