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Which kind of data can be obtained from analysis of routine wound cultures?
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Background: Data about local prevalence of resistant pathogens is important for a diabetic foot clinic. Previously (2006) our analysis of routine cultures results showed extremely high prevalence of resistant microorganisms, but cultured patients often have more severe and resistant to therapy wounds than not cultured ones. Aim of this study was to evaluate which data can be reliably obtained from consecutive cultures analysis which is available for every DF clinic. Methods: All consecutive wound cultures obtained between 1 Jan 2008 and 1 Mar 2010 were analyzed. Total of 106 patients had type 1 or 2 diabetes and foot (n=96) or leg (n=10) ulcers or post-operative wounds. 51% of patients had limb ischemia; in 81% antibiotics (AB) were used previously to treat this ulcer/wound; in 50% of all patients we observed clinical inefficacy of ABs before culturing; 40% were hospitalized in previous 6 months. Material for culture was obtained by pus aspiration, if it was impossible – by deep swab. Results: 128 microorganisms were isolated in 96 patients (average 1.3 per patient; 10 cultures were negative). Gram+ cocci were the most frequent pathogens (70%): St. aureus 53%, coagulase-negative Staph. 13%, Streptococci 4% (incl. Enterococci 2%). Enterobacteriacae (E.coli, Proteus, Klebsiella, Enterobacter) took place in 21% cultures, nonfermentative bacteria (Pseudomonas, Acinetobacter) in 8%, others in 1%. 38% of all St. aureus (20% of all cultures) were MRSA. Only 7% MRSA were sensitive to cipro-, 5% to levofloxacin, 38% to rifampicin and 50% to fusidic acid (often used as ABs of reserve in outpatients with MRSA). Of MSSA, 71% were sensitive to clindamycin, 84% - to levofloxacin, 69% - to cipro floxacin. Among Enterobacteriacae only 52% were sensitive to amoxicillin/clavulanic acid, 68% to gentamycin, 78% to amikacin, 64% to ciprofloxacin (intermediate sensitivity was considered as resistance). As not all infected ulcers were cultured and even consecutive cultures results represented a selected group, we stratified data according to known risk factors of drug resistance. Prevalence of MRSA increased from 0% to 21% (of all cultures) in previously AB-treated, to 26% in previously hospitalized, to 28% in AB failure and to 47% with previous hospitalization + AB-failure. Ischemia and ulcer location (leg/foot) had no influence on prevalence of resistant organisms. Conclusions: Routine cultures analysis not always shows prevalence of resistant pathogens among all ulcers but allows us to assess: (1) pathogens which are most often responsible for AB failure, (2) real prevalence of MRSA and others in subgroups with known risk factors of resistance, (3) sensitivity of resistant microbes to "antibiotics of reserve".