Dokumenttyp: journal article

Autor(en) des Beitrags:
Schneider, Jochen; Hapfelmeier, Alexander; Fremd, Julia; Schenk, Philipp; Obermeier, Andreas; Burgkart, Rainer; Forkl, Stefanie; Feihl, Susanne; Wantia, Nina; Neu, Bruno; Bajbouj, Monther; von Delius, Stefan; Schmid, Roland M; Algül, Hana; Weber, Andreas

Titel des Beitrags:
Biliary endoprosthesis: a prospective analysis of bacterial colonization and risk factors for sludge formation.

Abstract:
Bacterial colonization of biliary stents is one of the driving forces behind sludge formation which may result in stent occlusion. Major focus of the study was to analyze the spectrum and number of microorganisms in relation to the indwelling time of stents and the risk factors for sludge formation. 343 stents were sonicated to optimize the bacterial release from the biofilm and identified by matrix-associated laser desorption/ionization-time of flight mass spectrometer (MALDI-TOF). 2283 bacteria were analyzed in total. The most prevalent microorganisms were Enterococcus species (spp.) (504; 22%), followed by Klebsiella spp. (218; 10%) and Candida spp. (188; 8%). Colonization of the stents mainly began with aerobic gram-positive bacteria (43/49; 88%) and Candida spp. (25/49; 51%), whereas stents with an indwelling time>60 days(d) showed an almost equal colonization rate by aerobic gram-negative (176/184; 96%) and aerobic gram-positive bacteria (183/184; 99%) and a high proportion of anaerobes (127/184; 69%). Compared to stents without sludge, more Clostridium spp. \([P = 0.02; \text{Odds Ratio (OR): } 2.4; 95\% \text{ confidence interval (95\%CI): } (1.1-4.9)]\) and Staphylococcus spp. \([P = 0.03; \text{OR}\)
(95% CI): 4.3 (1.1-16.5)] were cultured from stents with sludge. Multivariate analysis revealed a significant relationship between the number of microorganisms [P<0.01; OR (95% CI): 1.3(1.1-1.5)], the indwelling time [P<0.01; 1-15 d vs. 20-59 d: OR (95% CI): 5.6(1.4-22), 1-15 d vs. 60-3087 d: OR (95% CI): 9.5(2.5-35.7)], the presence of sideholes [P<0.01; OR (95% CI): 3.5(1.6-7.9)] and the occurrence of sludge. Stent occlusion was found in 70/343 (20%) stents. In 35% of cases, stent occlusion resulted in a cholangitis or cholestasis. In conclusion, microbial colonization of the stents changed with the indwelling time. Sludge was associated with an altered spectrum and an increasing number of microorganisms, a long indwelling time and the presence of sideholes. Interestingly, stent occlusion did not necessarily lead to a symptomatic biliary obstruction.