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# Postoperative course of acute suppurative cholangitis, depending on the ability of microorganisms to form a biofilm

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Inadequate implementation of the treatment of this disease to a certain extent due to the formation of microbial biofilms - a consortium of bacterial cells enclosed in a polymer (polysaccharide) matrix and fixed to the drains, catheters and wound itself. Currently, the role of microbial biofilms in infectious diseases is not fully appreciated, however, there are indications that up to 80% of infectious

**Purpose:** To determine the ability of pathogens of acute suppurative cholangitis to form biofilms and to assess their impact on the severity of the inflammatory response

**Materials and Methods:** There were 60 patients aged 16 to 65 years with acute suppurative cholangitis, were hospitalized in the Kharkiv City Clinical Hospital № 17 multidisciplinary about cholelithiasis, choledocholithiasis, stenotic lesions of major duodenal papilla.

In order to decompress the biliary tract was performed papillosphincterotomy endoscopic retrograde cholangiography after a preliminary, to the planned reorganization of bile ducts with an antiseptic solution produced nazobiliarnogo installation of drainage and, according to testimony, spent infusion, detoxifying and symptomatic therapy. All patients fulfilled the clinical and laboratory examination. Clinical evaluation of the disease was carried out taking into account the availability and time of regression of signs of systemic inflammatory response syndrome - SIRS, the duration of the disease. Bacteriological examination was carried out by conventional methods with the identification of micro-organisms to form. The ability of microorganisms to form biofilms was assessed by optical density (OD LU) on a biochemical analyzer LabLine-90.

**Results:** All patients with acute suppurative cholangitis at admission were observed at least one symptom of a systemic inflammatory reaction.

Significant ($p \leq 0{,}001$) reduction in signs of systemic inflammatory response syndrome in patients with acute suppurative cholangitis marked by 4.1 ± 0.5 days after the surgical intervention. Treatment time in hospital averaged 14.3 ± 2.5 days. Foci of surgical infection during surgery were allocated 64 strains of pathogens. In 38 patients the causative agent was isolated in a monoculture, in 22 - in associations. Analysis of the ability to form biofilms pathogens isolated from patients with acute suppurative cholangitis *in vitro* showed uneven distribution of this trait among groups of pathogens. Direct correlation between the ability of microorganisms to the formation of biofilms and the duration of the disease (the linear correlation coefficient $r = 0.61$). At the same time, the correlation between this ability with the terms of the regression of clinical signs of SIRS was less significant and wore reversed ($r = -0.48$). Correlation of the ability of pathogens to form biofilms with the terms of the appearance of granulation tissue in wounds was weak ($r = -0.24$), as well as with the level of sensitivity of microorganisms to antibiotics used in the work ($r = -0.28$).

**Conclusions:** The clinical strains of S.aureus, C.albicans and K. pneumoniae isolated from patients with acute suppurative cholangitis, was significantly ($p \leq 0.05$) had a more pronounced ability to form bioplenkok, increasing the likelihood of colonisation by these microorganisms drainage structures. Direct correlation between the ability of microorganisms to the formation of biofilms and the duration of the disease indicates the need for a combination of antimicrobial therapy in acute cholangitis

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