

OPPORTUNISTIC PATHOGENS CARRIAGE IN HEMODIALYSIS PATIENTS: A SINGLE-CENTER STUDY

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INTRODUCTION AND AIMS:

Colonization with Gram-positive cocci is a recognized risk factor for subsequent bacterial infections in hemodialysis (HD) patients. Along with coagulase-negative staphylococcus, *Staphylococcus (S) aureus* is one of the most common causes of serious bacterial infections in HD patients.

The aim was to study features of the opportunistic pathogens carriage in HD patients with subsequent evaluation of their infectious morbidity.

METHODS:

This study was an observational, prospective, epidemiological tracking, performed in 1.5 years by microbiological and clinical examination. The study included 79 patients with the end stage renal disease (ESRD) on HD from dialysis single-center of Ukraine. 44 (55.7%) patients were men, age from 23 to 77, average 48.4 ± 4.63 years and the most common cause of ESRD was glomerulonephritis (47 patients, 59.5%). Arteriovenous fistulas (AVF) were used as vascular access in 100% of the patients. Central venous catheter (CVC) at dialysis initiation was used in 32 patients. The microorganisms isolation was carried by seeding swabs from the nose, pharynx and skin around the AVF out in conventional culture media.

RESULTS:

The most common isolated microorganisms were Gram-positive cocci (80.2%, $p < 0.01$). Fungi were isolated from 17.7 % positive cultures. Microbiological results are shown in Table.

The 26 (68.4±4.75 %) methicillin-resistant *S. aureus* (MRSA) strains were identified in 23 patients. Vancomycin-resistant (VRS) *S. aureus* and *S. haemolyticus* carriers were 28 (35.4%) and 27 (34.2%) patients, respectively. Pharyngeal colonization of vancomycin-resistant enterococci (VRE) was found in 8 (10.13%) patients. During the observation 14 bacterial infections episodes among patients were detected (12 pneumonia, 2 endocarditis, 1 osteomyelitis). Also, we analyzed risk factors for colonization MRSA / VRS and bacterial infections in HD patients (age, gender, reason for ESRD, type of vascular access in dialysis initiation, comorbidities).

Patients with a history of CVC using ($n = 32$) showed a higher rate carriers MRSA / VRS (87.5% vs. 36.2%, $p < 0.01$) and cases of bacterial complication (25% vs. 8.5%, $p < 0.05$) than without it ($n = 47$). This result was only one positive conclusion in the study.

Cultures obtained in dialysis patients

	Nasal swab	Pharynx swab	Skin swab
Isolated microorganisms	64 positive; 15 negative	141 positive; 0 negative	32 positive; 47 negative
<i>S. haemolyticus</i>	33	10	26
Str. α -haemolyticus	0	57	0
<i>S. aureus</i>	24	8	6
<i>E. faecalis</i>	0	18	0
<i>E. faecium</i>	0	6	0
Fungi	3	39	0
Others	4	3	0

CONCLUSIONS:

This study demonstrated role vascular access and the relevance of MRSA / VRS screening in HD patients and should alert the physicians that carriage is associated with poor clinical prognosis despite a lack of overt clinical signs of infection.

