

Vancomycin-resistant Enterococci colonization within hemodialysis population- single centre experience

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Introduction: Vancomycin-resistant Enterococci (VRE) colonization is common occurrence in hemodialysis patients, due to direct contact in closed dialysis setting, frequent hospitalizations and antibiotic use. Apart from epidemiological concern, the high percentage of VRE carriers increase the risk of invasive infection outbreaks, with high morbidity and mortality in immunocompromised. The aim of this cross sectional single-center study was to investigate the prevalence and risk factors for VRE colonization and infection among hemodialysis patients.

Methods: Stool samples from 169 asymptomatic hemodialysis patients were obtained and cultured on enterococcosel agar with 6 µg/ml Vancomycin. Logistic regression analysis was used when studying the correlation of VRE colonization with demographic data, laboratory results, comorbidities, vascular access and previous hospitalization or antibiotic use inside of 30-day period. All patients were followed-up during 11 months, in order to assess the potential VRE infection development.

Results: Coproculture of 49 patients (28.9%) showed the presence of VRE. Previous hospitalization inside 30 days, proved to be the most important risk factor for VRE development (OR 4.3, CI 1.4-10.4, p=0,014). Previous antibiotic (OR 2.2, CI 1.1-4.5, p=0.047), especially Vancomycin therapy (OR 3.5, CI 1.2-10.7, p=0.021), increased the odds of VRE colonisation. We also found that VRE-colonized patients did not have positive inflammatory syndrome but tended to have lower Hgb levels (10.2 vs 10.6 g/L, t=2.52, p= 0.02). During follow-up, 11 patients (7%), of which 6 previously defined as VRE colonized, developed VRE infection. We didn't prove VRE colonization as significant risk factor for VRE infection development, but, if we observe only VRE colonized patients with central venous catheter as vascular access, they had 13.8 times higher odds of being VRE infected (OR 13.8, CI 2.7- 16.6, p<0.001).

	OR (CI)	p
Age (>65)	1.4 (0.45-1.89)	0.345
Sex (M vs F)	0.95 (0.36- 1.2)	0.27
Diab. mellitus	1.21 (0.86-1.71)	0.145
Anemia (Hgb<10g/l)	1.65 (0.95-2.01)	0.081
Central venous catheter	1.45 (0.78-2.3)	0.329
Antibiotics inside 30 days	2.2 (1.1-4.5)	0.047
Vanco inside 30 days	3.5 (1.2-10.7)	0.021
Hospitalization inside 30 days	4.3 (1.4-10.4)	0.014

Table 1. Risk factors for VRE colonization

	VRE +	VRE-	p
Age	64.2 ± 17.2	62.5 ± 19.4	>0.05
CRP (mg/mL)	10.5 ± 4.3	10.3 ± 5.7	>0.05
Hemoglobin (g/L)	10.2 ± 1.1	10.5 ± 1.2	0.021
Feritin (ng/mL)	212.2 ± 40.1	193.2 ± 36.3	>0.05
PTH (ng/L)	232 ± 83	248 ± 78	>0.05
Albumin (g/L)	36.2 ± 5.1	35.4 ± 4.7	>0.05
GI Symptoms (GSR scale)	5.6 ± 2.4	5.1 ± 2.2	>0.05
Kt/V	1.23 ± 0.37	1.31 ± 0.29	>0.05

Table 2. Comparison of VRE colonized and non-colonized patients

Conclusion: High VRE colonization rate in hemodialysis setting, may increase odds of subsequent infection among patients with central venous catheters. This finding emphasize the importance of regular screening and cautious hygienic and antimicrobial practice.

Literature:

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