Terlipressin therapy is associated with increased risk of colonisation with multidrug-resistant bacteria in patients with decompensated cirrhosis

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Abstract

Background: Patients with cirrhosis are susceptible to develop bacterial infections that trigger acute decompensation (AD) and acute-on-chronic liver failure (ACLF). Infections with multidrug-resistant organisms (MDRO) are associated with deleterious outcome. MDRO colonisation frequently proceeds MDRO infections and antibiotic therapy has been associated with MDRO colonisation.

Aim: The aim of the study was to assess the influence of non-antibiotic medication contributing to MDRO colonisation.

Methods: Three hundred twenty-four patients with AD and ACLF admitted to the ICU of Frankfurt University Hospital with MDRO screening were included. Regression models were performed to identify drugs associated with MDRO colonisation. Another cohort (n = 129) from Barcelona was included to validate. A third multi-centre cohort (n = 203) with metagenomic sequencing data of stool was included to detect antibiotic resistance genes.

Results: A total of 97 patients (30%) were identified to have MDRO colonisation and 35 of them (11%) developed MDRO infection. Patients with MDRO colonisation had significantly higher risk of MDRO infection than those without (p = 0.0098). Apart from antibiotic therapy (odds ratio (OR) 2.91, 95%-confidence interval

(CI) 1.82-4.93, p < 0.0001), terlipressin therapy in the previous 14 days was the only independent covariate associated with MDRO colonisation in both cohorts, the overall (OR 9.47, 95%-CI 2.96-30.23, p < 0.0001) and after propensity score matching (OR 5.30, 95%-CI 1.22-23.03, p = 0.011). In the second cohort, prior terlipressin therapy was a risk factor for MDRO colonisation (OR 2.49, 95% CI 0.911-6.823, p = 0.075) and associated with risk of MDRO infection during follow-up (p = 0.017). The validation cohort demonstrated that antibiotic inactivation genes were significantly associated with terlipressin administration (p = 0.001).

Conclusions: Our study reports an increased risk of MDRO colonisation in patients with AD or ACLF, who recently received terlipressin therapy, while other commonly prescribed non-antibiotic co-medications had negligible influence. Future prospective trials are needed to confirm these results.