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Comment on: Haubitz et al. Outcome of *Clostridioides difficile* infections treated in a Swiss tertiary care hospital: an observational study

Zha Mei[a], Ren Xiaobing[a], Lu Jie[b], Luo Jun[c]

[a] Departments of Infection Management, The People's Hospital of Jianyang City, Sichuan, China
[b] Departments of Infection Management, The People's Hospital of Jianyang City No 2, Sichuan, China
[c] Department of Laboratory Medicine, Chengdu Second People's Hospital, Chengdu, Sichuan, China

In the absence of primary prevention of *Clostridioides difficile* infection (CDI) and limited treatment options, it is very important to have an in-depth understanding of the multiple factors that affect the risk of CDI recurrence and mortality. Haubitz et al. assessed the local epidemiology, treatment outcomes and risk factors for CDI recurrence and mortality [1]. We read this article with great interest and believe that this study found some phenomena and rules, but there may also be some problems and deficiencies, which are worth discussing.

First, the study selected as research population all adult in- and outpatients treated for CDI at the Kantonsspital Aarau, a Swiss tertiary care hospital, which is representative to some degree, but generalisability to the populations in other regions remains to be discussed.

Second, there were differences in the influence of individual risk factors on the occurrence of recurrent CDI that need further research and discussion. For example, reference [1] identified advanced age >70 years as a risk factor for CDI recurrence. However, other reference studies have shown that advanced age >65 years was a risk factor for CDI recurrence. A meta-analysis revealed that the independent risk factors associated with recurrent CDI were age ≥65 years (risk ratio 1.63, 95% confidence interval [CI] 1.24–2.14; p = 0.0005) [2]. Kelly found that age >65 years was highly predictive of CDI recurrence [3]. Bauer et al. found that an age of 65 years or older (adjusted odds ratio 3.26, 95% CI 1.08–9.78; p = 0.026) was significantly associated with outcome of CDI [4]. Other literatures confirmed that the close association between age ≥65 years and recurrent CDI and concluded that advanced age was the most frequent risk factor for CDI recurrence [5–9]. In reference [1], severe comorbidity (haematological malignancy in their analysis) was also included in the risk factors for CDI recurrence. However, for malignant haematological disorders there is evidence of an association with *Clostridioides difficile* carriage only, but there have been no suitable studies that explored a possible association of this risk factor with symptomatic infection [10–12].

Third, the number of samples included in this study was relatively small; in particular the number of cases receiving non-metronidazole treatment was too small. The low number of cases and recurrence events so limited the degrees of freedom that the authors abstained from performing multivariate regression analyses. The final conclusion might be inevitably biased.

Therefore, it is necessary to select a wider area for multicentre and large sample clinical research in future research. The risk factors for CDI recurrence need to be studied on a large scale and prospectively for more general conclusions.

Correspondence:
Mei Zha, MD, The People's Hospital of Jianyang City, Sichuan 641400, China, 1077024280[at]qq.com

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