Silent but deadly: patients with enterococcal bacteraemia should be assessed for colorectal neoplasia

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The epidemiology of bloodstream infections has changed during the early 21st century, and our understanding of complex host–pathogen relationships continues to evolve. Enterococci have emerged as major community and health care pathogens; the association of colorectal neoplasia with enterococcal infections has recently been reported, particularly with community-acquired *Enterococcus faecalis* bacteraemia of unknown source.[1,2]

In contrast, the association of *Streptococcus gallolyticus* (previously: *S. bovis*) bacteraemia with infective endocarditis and colorectal neoplasia has been recognised for many years;[1,3–6] 25–80% of patients with *S. gallolyticus* bacteraemia have concomitant colorectal tumours that can arise years after the initial presentation of infection.[1,3–6]

To investigate the association of enterococcal infection with colorectal cancer in the Barwon region of southwestern Victoria (population, 300 000), we characterised the epidemiology, clinical features, outcomes and predictors of mortality for all 376 patients diagnosed with enterococcal bacteraemia during 2010–2017. Our study was approved by the Barwon Health Research Ethics Committee (reference, 17/7).

The overall incidence of enterococcal bacteraemia was 19.9 cases per 100 000 person-years; 68.4% of patients were men, and the median age was 71 years (range 27–90 years). Of 180 patients for whom we had detailed medical records, 12 (median age, 74.5 years; range, 53-90 years), had been referred for colonoscopy solely because *E. faecalis* bacteraemia (seven cases) or infective endocarditis (five cases) had been diagnosed. Colonoscopy identified previously undiagnosed colorectal neoplasias in nine patients (three of five patients with infective endocarditis, six of seven with bacteraemia), including two instances of adenocarcinoma and nine of adenoma (two with high grade dysplasia, five with moderate grade dysplasia, and two with low grade dysplasia).

The most frequent comorbid conditions in the patients for whom we had full records were gastrointestinal tract disease (101 of 180 patients, 56%), urological disease (51 patients, 28%), malignancies (68 patients, 38%; including 16 cases of gastrointestinal malignancy), and cardiovascular disease (122 patients, 68%). Infective endocarditis was present in 27 of 180 patients (15%), one of whom also had known colorectal cancer. In-hospital and one-year mortality rates were 13% (24 of 180) and 40% (68 of 169 patients) respectively. Multivariable analysis indicated that underlying urological malignancy (adjusted odds ratio [aOR], 3.57; 95% confidence interval [CI], 1.10–11.6; $P = 0.035$) and colorectal cancer (aOR, 4.47, 95% CI, 1.36–14.7; $P = 0.014$) predicted one-year mortality.

Our findings are supported by two recent studies that highlighted the need for investigating possible colonic lesions in patients with *E. faecalis* bacteraemia and infective endocarditis, even in the absence of gastrointestinal tract symptoms. The first found that 6 of 28 patients with enterococcal infective endocarditis (21%) had a new colorectal neoplasm,[1] while in the second study colorectal cancer was detected in more than half the patients with *E. faecalis* endocarditis with an unknown source of infection.[2] In our patients, underlying urologic and colorectal cancer were independently associated with significantly higher one-year mortality.

Our study is the first in Australia to identify the importance of evaluating patients with *E. faecalis* bacteraemia for underlying colorectal neoplasia. Routine colonoscopy should be considered for patients with either *S. gallolyticus* or *E. faecalis* bacteraemia or infective endocarditis with an unclear source of infection.

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