Letter

Saccharomyces boulardii fungaemia in an intensive care unit patient treated with caspofungin

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Abstract

We describe a case of *Saccharomyces boulardii* fugaemia in a critically ill patient with septic shock treated with a probiotic agent containing this yeast. We attributed this fugaemia to gut translocation. Our use of caspofugin yielded excellent results.

Saccharomyces boulardii is frequently used in critically ill patients to treat diarrhoea, and it is the only yeast probiotic that has been proved to be effective in double-blind studies [1,2]. Although it is considered a safe biotherapeutic agent, the incidence of fungaemia has increased in recent years [3].

A 56-year-old male patient was transferred to our intensive care unit with pneumonia and septic shock. Five days previously he had been intubated and admitted to the coronary care unit because of acute pulmonary oedema. Despite antibiotic treatment and supportive therapy in the intensive care unit, fever continued and both *Acinetobacter baumannii* and *Klebsiella pneumoniae* were isolated from bronchial secretions. Catheter-tip culture of the central venous catheter remained sterile. The patient then developed major diarrhoea (four to eight liquid stools per day). His serum was negative for *Clostridium difficile* toxin, and stool culture did not reveal any pathogens. Treatment with Ultra Levure (*S. boulardii*, Biocodex, Beauvais, France) 500 mg four times daily via feeding tube was started.

One week later, two blood cultures were found to be positive. A saccharomyces strain was identified as *Saccharomyces cerevisiae.* Susceptibility testing indicated the presence of a strain susceptible to caspofungin, treatment with which was initiated. The patient then improved and four subsequent blood cultures were found to be sterile. Sequencing analysis on the DNA of the strain isolated as *S. cerevisiae*, as well as the isolate of *S. boulardii* obtained from the commercially available product, revealed 98% correspondence, which is considered almost absolute identity. Given the microbiological finding that *S. cerevisiae* is undistinguishable from *S. boulardii,* we believe that fungaemia was a consequence of treatment with this yeast [4].

Three hypotheses have been reported for the pathogenesis of *S. boulardii* fungaemia [2]: yeast translocation across the gut mucosa, contamination of central venous catheter and massive colonization. Our patient's fungaemia was probably the result of translocation of *S. boulardii* as a consequence of septic shock and intestinal ischaemia.

S. boulardii fungaemia is usually treated with amphotericin B or fluconazole. We admininstered caspofungin with excellent results. This is the first case in the literature of *S. boulardii* being treated with caspofungin.

We conclude that the incidence of *S. boulardii* fungaemia is probably underestimated in critically ill patients. When a patient is treated with *S. boulardii*, health care professionals must wear gloves when they open the drug packaging and must do so outside the patient's room. The potential therapeutic benefit of *S. boulardii* should carefully be evaluated in patients with septic shock. If contamination of vascular catheters is suspected, then removal of the central catheter should be considered.

Competing interests

The authors declare that they have no competing interests.

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