**CASE REPORT**

Yoghurt biotherapy: contraindicated in immunosuppressed patients?

G MacGregor, A J Smith, B Thakker, J Kinsella

In this case the patient was critically ill, having had *S aureus* pneumonia, *C difficile* infection, pneumococcal septicaemia followed by a *L rhamnosus* septicaemia, as well as her underlying multiple medical problems. She had persistent high fevers despite antibiotic treatment. The cause of death was attributed to pneumonia due to *S pneumoniae* infection and secondary *L rhamnosus* septicaemia. The combination of live yoghurt ingestion, immunosuppressed host, and prolonged courses of multiple broad spectrum antibiotics including oral vancomycin paints a complicated picture. In this case, the microbiological link between the yoghurt eaten and the lactobacillus blood culture was not proved. It is certainly possible that the septicemia due to the *L rhamnosus* originated from the live yoghurt consumed, and this case highlights the need to proceed with caution particularly with this kind of live therapy in heavily immunosuppressed individuals in line with existing guidelines on the use of live vaccines in immunosuppressed patients.

The report also highlights the clinical difficulties in treating persistent *C difficile* diarrhoea. Repeated or pulsed courses of either oral metronidazole or oral vancomycin may prove effective. *Lactobacillus* spp are commonly used in some dairy products as part of the manufacturing process and have long been advocated as biotherapy for antibiotic associated diarrhoea. Fermented milk products, such as yoghurts, will contain live bacteria. The bacterial strains used are frequently unnamed but *Lactobacillus* spp, *Bifidobacterium bifidum*, *Streptococcus lactis*, and *Streptococcus cremoris* are common. *L rhamnosus* strain GG has been extensively studied and widely used as biotherapy. Although the exact mode of action of “biotherapy” remains uncertain, competition between commensals and pathogens for the same nutrients or binding sites and/or production of inhibitory metabolic products seem likely.

The human faecal flora is predominated by anaerobic non-sporing organisms such as *Bacteroides* spp. *Lactobacillus* spp are found throughout the gastrointestinal tract, their number and species distribution depends on diet and site of sampling in the gastrointestinal tract. *Lactobacilli* are one of the few Gram positive species intrinsically resistant to vancomycin. Others include *Leuconostoc*, *Pedicoccus*, and *Erspilothrix* spp. In this case, *L rhamnosus*, a normal member of the intestinal flora and present in “live yoghurt” may have been selected by prolonged oral vancomycin treatment. *Lactobacilli* are infrequent pathogens; the majority of isolates are from patients with endocarditis, the source most probably either the oral cavity, gastrointestinal tract, or female genital tract. *Lactobacillus* septicaemia in the absence of endocarditis is rare and in a review of 55 cases, underlying conditions included cancer, organ transplantation, diabetes mellitus, and recent surgery with a mortality rate of 14%. More recently, severe cases of septicaemia due to *Lactobacillus* spp have been reported in neutropenic patients after bowel decontamination with oral vancomycin.

**DISCUSSION**

A fatal case of *Lactobacillus rhamnosus* septicaemia after prolonged oral vancomycin for recalcitrant *Clostridium difficile* infection is reported. The patient was immunosuppressed with cyclophosphamide and fludrocortisone. She subsequently, her gas exchange deteriorated, she developed cardio-toxicity, tachycardia, and severe pyrexia. She suffered an asystolic cardiac arrest after four days of intensive care. The identity of the *Lactobacillus* spp was confirmed by the Public Health Laboratory Service as *Lactobacillus rhamnosus*. **Yoghurt biotherapy** may be hazardous in such circumstances.

**CASE REPORT**

A 42 year old woman with a long history of Sjögren’s syndrome, idiopathic renal failure, and an idiopathic axonal peripheral neuropathy causing type II respiratory failure was receiving cyclophosphamide and fludrocortisone. She developed *Staphylococcus aureus* pneumonia which responded to flucloxacillin and gentamicin (both given intravenously). Two weeks later she received oral trimethoprim for a urinary tract infection. Her respiratory condition deteriorated and she was started on intravenous ciprofloxacin and fludrocortisone. *Leuconostoc* species distribution depends on diet and site of sampling in the gastrointestinal tract. *Lactobacilli* are infrequent pathogens; the majority of isolates are from patients with endocarditis, the source most probably either the oral cavity, gastrointestinal tract, or female genital tract. *Lactobacillus* septicaemia in the absence of endocarditis is rare and in a review of 55 cases, underlying conditions included cancer, organ transplantation, diabetes mellitus, and recent surgery with a mortality rate of 14%. More recently, severe cases of septicaemia due to *Lactobacillus* spp have been reported in neutropenic patients after bowel decontamination with oral vancomycin.
In conclusion, the use of Lactobacillus spp as “biotherapy” should be carefully considered in the immunosuppressed, particularly when prolonged oral vancomycin has been administered.

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Authors’ affiliations

G MacGregor, Department of Respiratory Medicine, Western General Hospital, Edinburgh, UK
A J Smith, B Thakker Department of Medical Microbiology, Glasgow Royal Infirmary, Glasgow, UK
J Kinsella, University Department of Anaesthetics, Glasgow Royal Infirmary, Glasgow, UK

Correspondence to: Dr Gordon MacGregor, Room D38, 2nd Floor OPD, Western General Hospital, Crewe Road South, Edinburgh EH4 2XU, UK

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REFERENCES


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