New C. diff treatment reduces recurrent infections by 40 percent

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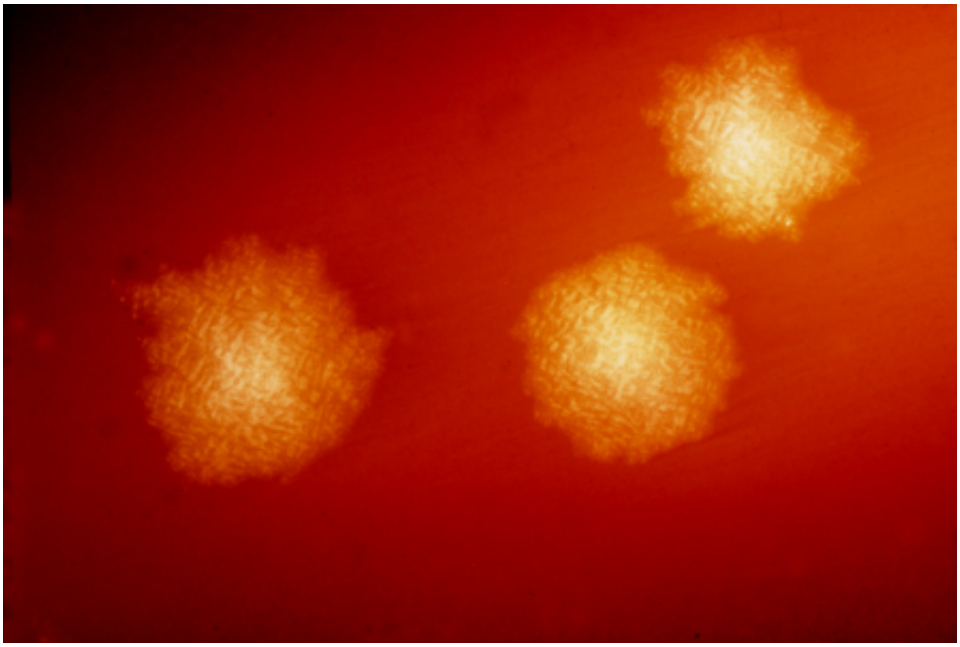

This photograph depicts Clostridium difficile colonies after 48hrs growth on a blood agar plate; Magnified 4.8X. C. difficile, an anaerobic gram-positive rod, is the most frequently identified cause of antibiotic-associated diarrhea (AAD). It accounts for approximately 15–25% of all episodes of AAD. Credit: CDC

A new treatment for *Clostridium difficile* (*C.diff*) infections reduces recurrent infections by nearly 40%, a large study has found.

C.diff, a bacterium that infects the bowel, is the most common cause of infectious diarrhea in hospitalised patients. Recurrences are common

after antibiotic treatment, are a cause of readmissions to hospital, and in some cases can be fatal.

Now a team of researchers have found that the addition of a drug called bezlotoxumab (Merck) to standard antibiotic treatment can reduce the risk of a repeat infection by 37%. Bezlotoxumab is a human monocalonal antibody and works by neutralising a toxin produced by the *C.diff* bacteria that damages the gut wall.

Mark Wilcox, Professor of Microbiology at the University of Leeds, led the study, which is published today in the *New England Journal of Medicine*.

Professor Wilcox said: "About one in four patients who have been treated with antibiotics for an initial *C.diff* infection will go on to have a repeat infection.

"These repeat infections are more difficult to treat, have more severe outcomes for the patient, and are associated with more hospitalisations. It is important to treat the first episodes of C. diff infection optimally, as each recurrence increases the chance of another episode even more.

"Fewer recurrent infections would mean less need to use antibiotics, fewer hospital admissions, reduced costs for the NHS and possibly a reduction in deaths."

For the study, doctors conducted a double-blind, randomised, placebo-controlled trial involving 2,655 adults across over 300 hospitals in 30 countries worldwide.

All the participants had primary or recurrent *C.diff* infections and were receiving standard-of-care antibiotics (metronidazole, vancomycin or fidaxomicin).

They were randomly assigned to receive infusions of:

- a single dose of (another human monocalonal antibody) actoxumab (10mg per kilogram of body weight)

- a single dose of bezlotoxumab (10mg per kilogram of body weight)

- a single dose of bezlotoxumab plus actotoxumab (10mg per kg of body weight)

- a placebo (saline)

After initial cure of their C.diff, the patients were then followed up for 12 weeks to see how many developed another C.diff infection.

- In the actoxumab group, 26% developed another C.diff infection

- In the bezlotoxumab group, 17% developed another C.diff infection

- In the bezlotoxumab/actotoxumab group, 15% developed another C.diff infection

- In the placebo group, 27% developed another C.diff infection.

"Doctors should now consider which patients could best benefit from use of bezlotoxumab," said Professor Wilcox.

"The studies showed that bezlotoxumab was particularly effective in those patients with risk factors for poor outcome, including older age, immunocompromise, and severe infection."

More information: *New England Journal of Medicine*, DOI: 10.1056/NEJMoa1602615

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