

Research shows some people predisposed for recurrent *C. difficile* infection

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University of Cincinnati (UC) researchers have found that some patients appear to be more predisposed for recurrent infection from the bacterium *Clostridium difficile*, or *C. diff*, and that it may advance to a more serious inflammatory condition in those individuals.

These findings are being presented via poster during [Digestive Disease Week](#), Monday, May 21, 2012, in San, Diego.

Mary Beth Yacyshyn, PhD, an adjunct assistant professor in division of [digestive diseases](#), says researchers found that the *C. diff* surface layer proteins (SLP) produced a different set of proteins (cytokines) in samples from individuals with recurrent infection when compared to samples from individuals with an initial onset of the infection, indicating a more chronic [inflammatory process](#), which is also seen in [inflammatory bowel disease](#) (IBD).

"Surface layer proteins of *C. diff* play a role in cell adhesion, the [pathological process](#) and the host's inflammatory response," Yacyshyn explains. "We wanted to see if purified SLP would induce immune responses in the samples from individuals who had their first documented episode of *C. difficile* and recurrent episodes."

Blood samples were taken from initial, recurrent and healthy patients and the [white blood cells](#) (lymphocytes) were isolated and cultured for 48 hours with SLP from *C. difficile*.

Researchers found SLP stimulation produced a wide array of proteins, or cytokines, being secreted in all groups.

"However, patients with recurrent *C. difficile* infection produced a more inflammatory pattern of cytokines than did patients with an initial infection," she says. "We found that some levels of these cytokines were similar to those found in the comorbid case controls, suggesting that any patient hospitalized for an extended period may be exposed to *C. difficile*."

"Overall, we found that the cytokine response from recurrent patients is more indicative of a chronic inflammatory process, suggesting that the initial immune response may be crucial to clearing the infection. If, due to other underlying disease predispositions, genetics or current medications, a patient does not clear the infection, this may result in a chronic or systemic inflammatory response leading to continuous infection or re-infection."

Yacyshyn says this is the first step in many to target the *C. diff* infection at the cellular level for the best patient outcome.

"In knowing that these cells respond differently in different people, we may be able to tailor treatment and avoid the onset of a chronic condition," she says.

Provided by University of Cincinnati Academic Health Center

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