

Probiotics appear to mitigate pancreatitis: Surprising hypothetical mechanism warrants further investigation

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(Medical Xpress) -- A probiotic treatment appears to mitigate pancreatitis in an animal model, leading to a new hypothesis of how probiotics may act, according to a paper in the November Applied and Environmental Microbiology. The bacterial species most closely associated with improvement in health was discovered for the first time in the course of this research.

Severe acute pancreatitis is a critical illness that is characterized by intestinal barrier dysfunction. While it is usually self-limiting, in 20 to 30 percent of cases patients develop serious disease, including [systemic inflammatory response syndrome](#), sepsis, and/or multiple [organ dysfunction](#), which frequently cause death.

In this study, Jacoline Gerritsen of University Medical Center, Utrecht, the Netherlands, and her collaborators gave one group of rats probiotic on a daily basis, beginning five days before they induced acute pancreatitis, and continuing briefly afterwards, before they sacrificed the animals. Another set of rats received a placebo.

The major finding: in the small intestine, higher than normal numbers of the newly discovered bacterium, “commensal rat ileum bacterium” (CRIB) were correlated with reduced severity of acute pancreatitis in animals that had been fed probiotic. These animals had less infection of remote organs, less infection of dying and dead pancreatic tissues, and

less severe immune response during acute pancreatitis, as demonstrated by lower plasma levels of proinflammatory cytokines. CRIB, a member of the genus *Clostridium*, is not a constituent of the probiotic (Ecologic 641), but rather a benign bacterium that normally inhabits the lower gut. “...these results suggest that effects of this multispecies probiotic mixture... are mediated by stimulation of a not previously described gut commensal bacterium... which protects the host from severe sepsis,” according to the report.

“This research has provided new knowledge on the possible mechanisms behind probiotic action,” says Gerritsen. “In addition, it shows that [bacterial species](#) inhabiting the small intestine might be very important for health. Up until now, medical researchers have neglected the [small intestine](#), because it is very difficult to obtain such samples from humans.” That needs to change, she says.

More information: J. Gerritsen, H.M. Timmerman, S. Fuentes, L.P. van Minnen, H. Panneman, S.R. Konstantinov, F.M. Rombouts, H.G. Gooszen, L.M.A. Akkermans, H. Smidt, and G.T. Rijkers, 2011. Correlatin between protection against sepsis by probiotic therapy and stimulation of a novel bacterial phylotype. *Appl. Environ. Microbiol.* 77:7749-7756.

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