

Intestinal microorganisms and colorectal cancer: Causative or opportunistic agents?

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Globally, colorectal cancer (CRC) is reported as the third most common cancer which accounts for 862000 deaths in 2018. Lifestyle and genetic factors are the main risk factors of CRC. However, in recent years, scientists believe that infectious microorganisms including bacteria, parasites and viruses could also be a contributing factor of CRC. Infection leads to CRC mainly via two mechanisms: inflammation and immunosuppression. Having said that, microorganisms can be either directly or indirectly be associated with CRC, with later being related to other gut related diseases such as Irritable bowel diseases (Crohn's and ulcerative colitis) and Irritable bowel syndrome that are known as CRC-inducing diseases. In addition, some organisms secrete metabolites that could enhance the growth of a tumor causing the tumour to spread faster. With this, past studies have linked some intestinal microorganisms namely *Bacteroides fragilis*, *Cryptosporidium parvum*, and human papillomavirus in the pathophysiology of CRC. On the other hand, numerous reports have also evidenced the presence of these microorganisms as opportunistic agents in immunocompromised individuals especially cancer patients. Such reports have not only focused on prevalence but also on how the host impaired immunity does is utilized by infectious agents to colonize the gut which eventually leads to severe diarrhea, causing difficulties to undergo treatment or recovery stage. The knowledge on opportunistic infections will mainly alert the medical practitioners about treatment protocols for the management of CRC patients. However, the current topic will focus more on the causative (directly or indirectly) effect of selected bacteria, parasite and viruses that are being associated with CRC. The mechanisms used by these microorganisms in inducing CRC will also be discussed. Such knowledge will create awareness on the importance of screening individuals with gut related symptoms for intestinal pathogens before advancing to advance cancerous stage.

Biography

Chandramathi S is a senior lecturer from the Department of Medical Microbiology, University of Malaya. As a senior lecturer, she has been teaching and supervising students in the field of Microbiology, Virology and Immunology. Her research mainly focuses on the association of intestinal microorganisms (bacteria, viruses, intestinal parasites) with CRC. She has successfully demonstrated that *Blastocystis* sp. infection exacerbates the CRC progression. Her novel ideas coupled with her enthusiasm to unravel the pathogenesis and mechanisms employed by the gut microbes allows her to remain significant in this research field. She has received a number of grants at both local and international levels. She has published more than 30 papers in peer reviewed journals and has more than 45 conference papers.

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