EDITORIAL

Colorectal cancer (CRC) remains a major health burden with over one million cases worldwide and a disease--specific mortality of approximately 33% in the developed world. For Brazil, it represents the third most common tumor in men with 14,180 expected new cases of cancer of the colon and rectum in men and 15.960 in women. These values correspond to an estimated risk of 15 new cases per 100,000 men and 16 women to every 100,000.

Despite the overall improvements in CRC therapy, our understanding of patient's response to the therapy remains poor. Although clinicopathological staging separates patients into groups with distinct outcomes, it offers little information regarding the response to treatment in individual patients.

The discovery of genetic and epigenetic changes occurring in normal mucosa and colorectal polyps has led to a greater understanding of CRC oncogenesis. The classical pathway is characterized by chromosomal instability and mutations of tumor suppressor genes mainly adenomatous polyposis coli (APC), KRAS, and p53. The second cancer pathway is characterized by extensive microsatellite instability (MSI) due to loss of DNA mismatch repair function.

Over the last years, several protein and genetic markers have been described in an attempt to refine prognostic information and predict the benefit derived from systemic treatment, most of which fail to demonstrate clinical utility. A classification of CRC that incorporates an understanding of the earliest evolutionary steps is necessary to dissect out the various risk factors that explain causation or pathogenesis or identify early target for chemoprevention.

Alterations in the cell cycle regulators and cell adhesion molecules have been reported to be involved in several malignant tumors. Recently, some studies investigated the clinical relevance of these molecular alterations in CRC, but the results are still controversial. In this issue of Applied Cancer Research, we presented two studies conducted to document the expression of the various cell cycle-related proteins and Beta-catenin and explore their role in the pathogenesis and provide specific information on the prognosis of CRC patients.

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