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Can inclusion of genetic polymorphisms improve the prognostic models in colorectal cancer?

Sevtap Savas

Memorial University of Newfoundland, Canada

Abstract

Colorectal cancer is a common malignancy in the developed countries. Commonly used prognostic markers in colorectal cancer are the disease stage and patient age. Present-day efforts are geared towards improving the predictive accuracy of existing prognostic models by including new markers.

In collaboration with the investigators at the Newfoundland Colorectal Cancer Registry, my laboratory is focused on identification of genetic polymorphisms that can predict the risks of recurrence and death in patients. As an example, previously we found that genetic polymorphisms from the serotonin transporter gene (*SLC6A4*) were predictive of overall and disease-specific survival times in a colorectal cancer patient cohort. While these results need to be replicated in other cohorts, based on the Akaike Information Criterion we also found that inclusion of the patient genotypes for the *SLC6A4* polymorphisms into the prognostic models improved their predictive accuracy (Savas et al. 2012). Likewise, by examining two different patient cohorts one of my graduate students identified that the *MTHFR* Glu429Ala and *ERCC5* His46His polymorphisms were associated with overall and disease-free survivals, respectively (Negandhi et al. *in press*). In these cases as well, inclusion of these polymorphisms as variables improved the multivariable models.

These preliminary results should be taken cautiously, yet they also underline the potential gain of information using polymorphisms as prognostic markers in colorectal cancer.

Biography

Sevtap Savas obtained her PhD in Molecular Biology and Genetics in 1999 from the Bogazici University, Turkey. She trained as a post-doctoral fellow and research associate in Louisiana State University (USA), Mount Sinai Hospital Research Institute (Canada) and Princess Margaret Hospital/Ontario Cancer Institute (Canada). Since 2008 she has been an assistant professor at Discipline of Genetics, Memorial University of Newfoundland (Canada). Her research program currently focuses on genetic prognostic studies in colorectal cancer using genetic, epidemiological, biostatistical and computational approaches and development of public databases. She also serves as a reviewer, academic editor or editorial board member for several journals.