Circulating microRNAs in oncogenic viral infections: potential diagnostic biomarkers

ABSTRACT

Cancer is a leading cause of high death rate worldwide. One strategy to control the disease is the early diagnosis by novel biomarkers that express during early stage of the disease. The recent diagnostic strategies in cancer don't have enough specificity to promote the detection of cancer at its beginning. Many biomarkers like protein biomarkers and metabolites are being used for diagnosis of various cancer types but miRNAs are excellent among them, because they have distinctive biochemical characteristics. Moreover, to raise the precision and capability of miRNA to diagnose cancer, the analyzing of both miRNAs and as well as selective mRNA will help in creating a more complete categorizer. Virus constitutes the cause of 20% of entire human cancer cases and both RNA and DNA viruses are linked with tumors in both animal and man. Even though many viruses can cause different tumors in animals, only some of them are linked with human cancers and are presently regarded as oncogenic viruses. These viruses include Human Papillomavirus (HPV), Hepatitis B (HBV) and Hepatitis C Virus (HCV), Epstein Barr Virus (EBV), Human Herpes Virus 8 (HHV8), Human T cell Leukemia Virus (HTLV) and Merkel Cell Polyomavirus (MCPyV). Expression data of miRNA in several cancers reveal that miRNA profile is different in cancer cells as compared to normal cells. So, miRNA could be useful biomarker for the detection of cancer. The present study strengthens a foundation and gives a logic to investigate the ability of miRNAs as circulating biomarkers in various cancers.