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Concordance between immunohistochemistry and MSI analysis for detection of MMR/MSI status in colorectal cancer patients

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Abstract BackgroundRecently, screening of colorectal cancer (CRC) patients for mismatch repair/microsatellite instability (MMR/MSI) status is

widely practiced due to its potential predictive and prognostic roles and a screening tool to reveal Lynch Syndrome (LS). The purpose of the study was to evaluate concordance between immunohistochemistry (IHC) and MSI analysis methods for detection of MMR/MSI status in colorectal cancer patients in Kuantan, Pahang. Methods Fifty selected CRC cases of deficient mismatch repair (dMMR) and proficient mismatch repair (pMMR) which were identified immunohistochemically in the previous study were subjected to MSI analysis. MSI Analysis System 1.2 (Promega) was utilized. Results The results of MSI analysis method showed MSI-High: 26% (13/50), MSI-Low: 6% (3/50), and Microsatellite Stable: 68% (34/50). The concordance was perfect (0.896, Kappa value) between MSI analysis and IHC methods for the assessment of MMR/MSI status in CRC patients. The discordance was only 4% (2/50). MSI analysis identified all dMMR cases determined by IHC except one case. The obtained frequency of dMMR and pMMR patients was 11.4% (14/123) and 88.6% (109/123) by IHC method, respectively. Conclusion Our findings support the universal practice of evaluating the MMR/MSI status in all newly diagnosed CRC patients. Based on the perfect concordance of two methods, the method of choice is based on the availability of expertise and equipments. IHC is highly appreciable method due to its feasibility and reproducibility.

Keywords

Author Keywords: MMR; MSI; IHC; MSI analysis; Colorectal cancer

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