The validation of immunohistochemical test to identify BRAF mutation in melanomas

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BACKGROUND: The Knowledge of BRAF mutation has become important for the treatment decision in metastatic melanoma, due the targeted therapies (anti BRAF and anti MEK), which showed increased survival in phase III clinical trials. Mutations are expected from 40% up to 50% of melanomas and the standard method for detection is DNA sequencing for mutation pV600. Studies have showed that this mutation can be indirectly identified by immunohistochemical test, one option efficient, viable and accessible for the diagnostic. Therefore, this study aims to analyze the sensitivity, specificity, positive and negative predictive of immunohistochemical test values of BRAF expression compared to DNA sequencing.

HYPOTHESIS: The immunohistochemical test has similar accuracy as DNA sequencing for detection of *BRAF* mutation.

METHODS: Methodological study where we compared 70 cases of patients with melanoma. Tumor samples preserved in paraffin were used for immunohistochemical tests (ICH) and genetic sequencing (4800 BRAF V600 Cobas®). Genetic sequencing was considered the gold standard. The immunohistochemistry test for heavily-pigmented lesions by melanin were analyzed by Kit method Ultraview Universal Alkaline Phosphatase Red (29 cases) and the other cases were analyzed by Optiview kit (41 cases).

RESULTS: Of the 70 cases, 42 were negative and 26 positive for BRAF gene mutation and immunohistochemical expression with concordant tests; 1 case was positive for ICH and negative for Cobas and 1 negative case for ICH and positive for Cobas. Thus, it obtained a sensitivity of 96.30%, specificity of 97.67%, negative predictive value 97.7 and positive predictive value 96.3 (kappa = 0.94, CI = 0.32 to 0.50). The conclusion is that the method of ICH proved to be valid in the BRAF mutation detection in patients with melanoma.