Different types of K-Ras mutations are conversely associated with overall survival in patients with colorectal cancer

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A glycine to valine substitution at codon 12 (G12V) in Kirsten-Ras (K-Ras) gene has been associated with reduced overall survival in colorectal cancer patients; however, the effect of other K-Ras mutations than G12V still remains unclear. Therefore, we investigated the role of different K-Ras mutations on overall survival in a homogeneous, large patient cohort with standardized therapy and uniform analysis of K-Ras mutation status. The study included 342 patients with histopathologically proven colorectal cancer. Survival data were provided by the federal agency for statistics in Austria. Occurrence of K-Ras mutations at codons 12, 13 and 61 were determined by capillary sequencing. The overall K-Ras mutation frequency in carcinoma tissue was 28%. Carriers of the G12V mutation at the K-Ras gene showed a significantly decreased overall survival compared to carriers of the wild-type [HR=2.56 (1.15-5.69)]. Other mutations than G12V were associated with better overall survival compared to wild-type [HR=0.44 (0.2-0.99)]. In conclusion, for the first time, our study showed clearly that different types of K-Ras mutations are conversely associated with overall survival in patients with colorectal cancer.