Title: Our experience with the occurrence of Hereditary Nonpolyposis Colorectal Cancer. Pedigree and genetic analysis of proven mutation carrier families.

Author: Miklós Tanyi MD

Institute of Surgery, University of Debrecen, Medical and Health Science Centre,

Leader of the topic: László Damjanovich MD, Phd,

Phd school: Medical Science

Phd program: Experimental and Clinical Oncology

The significance of screening and controlling of patients with hereditary colorectal malignant diseases cannot be underestimated; population-wide screening of patients over a certain age colorectal cancer is nonetheless important. The Hereditary Nonpolyposis Colorectal Cancer is the most common form of hereditary colorectal malignancies. 809 newly diagnosed colorectal cancer patients were screened for HNPCC in our department between 1997 and 2006. 4.3% of our patients completely fulfilled the Amsterdam Criteria, and other 6% had been considered suspicious of HNPCC. Based on these data are convinced that there is large amount of hereditary cases among our colorectal cancer patients in Hungary and the screening and control of these cases is far from being solved. The application of the Amsterdam Criteria is the easiest and it can lead to the detection of the largest amount of mutation carrier patients. By using exclusively this criteria system we can miss up to 30% of the mutation carrier patients. For the detection of any possible HNPCC patient the combined application of the Amsterdam and Bethesda Criteria is advised. We experienced a mutation detection rate of 77% among our Amsterdam positive patients, which seems to be better than data in the relevant literature.

In our study 10 pathogenic mutations and several formerly known or unknown polymorphisms were detected. Eight mutations had been found novel and published first by our group. We have not found repeatedly occurring mutations in our patients. We experienced that these genetic alterations are located sporadically in various exons of the involved MMR genes. Based on this fact we can conclude that there no so called „hot spots" on these genes where the mutations occur more often. The regular control of the screened HNPCC family members is much more cost effective than the complex oncological treatment of a developed malignant disease.

Key words: HNPCC, mutation, hMLH1, hMSH2, colorectal cancer,

Kulcsszavak: HNPCC, mutáció, hMLH1, hMSH2, vastagbél daganat,