Characteristics of colorectal cancer detected by quantitative faecal hemoglobin test in hospital opportunistic screening

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COLORECTAL CANCER SCREENING

Colorectal cancer (CRC) is the second most frequent malignant disease in Europe. Every year, 412,000 people are diagnosed with this condition, and 207,000 patients die of it. The introduction of population-wide national screening programs is necessary to reduce healthcare costs and improve patient outcomes, and is also being addressed at the highest levels by European Union (EU) administrations. A national screening program, of one or another, has been implemented in 14 out of 27 European countries. The most frequently applied method is faecal occult blood test (FOBT). In the Czech Republic we began CRC screening programs in 1995, and population-based FOBT with FIT (Fecal Immunological Test) in 2014. The involvement of GPs has been found to improve patient compliance with bowel cancer screening.

The first level of FOBT tested was guaiac-based gFOBT methods with sensitivity for colorectal cancer lower than 30%, and therefore this method of FOBT has been changed to immunological FIT. This second level of FOBTs tested was with quality control of diagnostic protein matrix (DCPM), which uses an antibody against human hemoglobin and is more sensitive than the gFOBT methods. These methods have very different accuracies and sensitivities, ranging from 29 - 72%, using different sampling devices and different stabilizers for the faecal sample. The third level of FOBTs are now quantitative methods of faecal hemoglobin determination with automated analysers (qFOBT), increasing the accuracy to 90 - 95%, enabling the setting to country-specific optimal cut-offs, and most importantly to be controlled by the External Quality Assurance Services (EQAS) programs. The European Group on Tumour Markers recommends the use of a quantitative FOBT with qFOBT test for all new centres undertaking FOBT for colorectal neoplasia, and organized faecal immunochemical testing has been associated with an increase in annually detected CRC. The pilot study with OC-sensor qFOBT recommended 75 ng/ml as the optimal cut-off value for screening in the Czech Republic.

QUANTITATIVE FIT METHOD – PREANALYTICS

Determination of hemoglobin in stool is carried out as a routine diagnostic test for outpatient and inpatient specialist clinics in the General Faculty Hospital, Prague, for practical and occupational gastroenterologists as well as for pediatric clinics, where the concentration of hemoglobin in the stool serves as a marker of intestinal anaemia.

In our study we did not identify the dependence of Hb values ng/ml to CRC stage (p = 0.25), but it is necessary to consider the potential bias of the wide range between the implementation of FIT test and CRC diagnosis (0.1 to 35.7 months) in this study. False negativity for individual CRC stages 1/3/4 was 15/12/10/10%. False negativity for individual CRC stages 1/3/4 was 15/12/10/10%. False negativity for individual CRC stages 1/3/4 was 15/12/10/10%. False negativity for individual CRC stages 1/3/4 was 15/12/10/10%. False negativity for individual CRC stages 1/3/4 was 15/12/10/10%.