

Screening and efficacy of sporadic and hereditary CRC detection in low incidence population.

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The patients survival in case of early detection of the cancer by FOBT screening and colonoscopy is an indicator of incidence and mortality from CRC. However mortality rates are high in countries with relatively low incidence such as in Moldova, Russia, Montenegro, Poland and Lithuania. For intense in Lithuania the CRC age-standardized incidence rate is 23.4 and mortality rates 13.7 while in the Netherland comparative rates are 40.2 and 13.4 respectively. The first time during 2000 year in Lithuania was introduced in medicine practice guaiac Haemoccult test for early diagnosis of CRC improving and to investigate the possible development of CRC and diagnoses in patients after once testing. Deadline of follow-up for possible development cancer and diagnosis in 374 patients [256 (68%) female and 118 male (32%)] were once tested by Haemoccult was 2008 September (median 8, 7 years). The risk of cancer development and diagnosis was calculated by standard incidence ratio (SIR) use statistic program PY2. In the 243 (66.9%) patents including with positive CRC family history 48(18.8%) female and 22 (18.6%) male, who were tested and did not obtained positive test, SIR for CRC was 1, 09; in the 120 (33.1%) patients, who have obtained positive test, SIR was 2.04 for CRC and 3.07 for all cancer. Any one a CRC did not diagnosed in stage-I (TNM). The results of this study suggest that early CRC detection by once testing Haemoccult is impossible. In 2009 Lithuania started a national Program for CRC screening by fecal immunochemical testing (FIT) and colonoscopy. The screening program was implemented in June 2009 using the FIT (OC-Sensor test, Eiken, Tokyo Japan) with automated reading techniques in one of the biggest Vilnius city Centro Polyclinic. The target population according to criteria in age 50-74 years for potential screening was 45 330 subjects: female 27 909(61.6%) and 17 421(38.4%) male. Patients whose samples revealed an FIT value Hb>100 – ng/ml of buffer underwent colonoscopy. The rate participation we calculated every 2 years because the patents after initial testing with negative FIT test necessary performed regular every 2 year repeating test. Overall 35 689 – 13 904(39%) male and 21 785 (61%) female subject from a potential target population were accepted for screening. The participation rate for least once screening over the 7 years (every 2 years) was 78.7%. The participation rate in screening calculated every 2 years 1-4 round was 33.6%, 35.1%, 40.2%, 23.7% respectively for female and male. Estimated that from 35 689 participated in screening patients in 176(0.98%) was diagnosed CRC cases and from 9 641 non-participated patients was diagnosed 94(0.98%) CRC cases. After calculation of comparative efficacy for diagnosis of CRC by stage I-IV and ten years survival of screened and non-screened patients were not significantly different $P=0.128908$ and $P=0.3898$ respectively.

Screening of average risk population is limited because the criteria of age are 50-74 years and potential young (below 50 years) subjects with high risk to hereditary cancer including Lynch Syndrome are not accepted in screening. In Lithuania in same period with population screening in 2009 was introduced in medical practice a screen first colon cancer tumour by MSI and IHC staining according to histological criteria and young age below 50 years. We study to estimate the efficacy of cancer diagnoses in young patients below 50 years who had tumour failed to express MLH1, MSH2 and MSH6 use staining MSI and IHC. For period 2009-2019 were diagnosed 54 suspected for Lynch syndrome patients (32 man and 22 women). Any one a CRC did not diagnosed in stage-I (TNM). The distribution of diagnosed CRC stage in each stage were: Stage I-0, II- 19(35.2%) III- 21(38.8%), IV-10(18.5%), unknown-4(7.5%).

Conclusions: Early CRC detection by once testing is impossible. The participation rate for at least once screening over the 7 years of the study was 78.7% with participation rate in each round (1-4) was less than EU guideline set minimum 45% and did not improve a detection of CRC by stage $P=0.13$ and ten years survival of screened and non-screened of CRC patients is not significantly different $P=0.39$. Farther research is needed to help to determinate and stratify various risks, such as LS for the development of CRC in low incidence population.