Sequencing in diagnostics of high genetic risk of breast cancer.

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It is of interest to establish the full spectrum of deleterious mutations in women with familial breast cancer in different populations. We performed whole exome sequencing of 144 women with familial breast cancer, previously found to be negative for 11 Polish founder mutations in BRCA1, CHEK2 and NBS1 and evaluated the sequences of 12 known breast cancer susceptibility genes. A BRCA2 mutation was detected in twelve cases, a (non-founder) BRCA1 mutation was detected in five cases, a PALB2 mutation was detected in four cases and an ATM mutation was detected in two cases. In no other gene was more than one mutation found. Polish women with familial breast cancer who are negative for founder mutations in BRCA1, CHEK2 and NBS1 should be fully screened for mutations in BRCA1, BRCA2 and PALB2.

Programme of Ministry of Health-Part 4 Early defection of prostate cancer i families with hereditary predisposition to this tumour.

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Moderate and high risk variants might be used to define a group of men at higher than average risk of prostate cancer. Genetic testing might enable personalized approach to prostate cancer prevention and screening. To date we identified six other founder alleles in three genes (*CHEK2, HOXB13 and NBN*) and a single variant in 8q24 region (rs188140481), which predispose to prostate cancer in Poland.

We recommend that genetic testing for prostate cancer susceptibility in Poland should be based on seven founder alleles (IVS2+1G>A, 1100delC, del5395, I157T in *CHEK2*; 657del5 in *NBS1*; G84E in *HOXB13*; allele A of rs188140481). The American Cancer Society currently recommends a discussion about PSA screening with men aged ≥50 years, or aged ≥45 years for men at increased prostate cancer risk (African-American men or those with a family history of prostate cancer). Therefore, in the event of a positive test we suggest annual PSA screening proceed from age 45 years.