Abstract

The existence of fetal microchimerism has been demonstrated many years ago. This phenomenon is associated with observation of two or more genetically different populations of cells present in one person. Fetal microchimerism originates naturally during pregnancy, by bidirectional transfer of the cells through placenta from fetus to mother (fetal microchimerism) and from mother to fetus (maternal microchimerism). In some cases fetal cells persisted in mother for decades after pregnancy. In my thesis I showed the presence of fetal microchimerism in tissues of endometrial cancer, breast cancer and ovarian cancer and in control, nonmalignant tissues. I worked with deep-frozen tissues, native tissues and cell cultures created from native tissues. I planed also the analysis of paraffin-embedded tissues; however this type of material showed to be unusable for fetal cells detection. On the contrary, native and deep-frozen tumor and control tissues are suitable for this type of research and fetal microchimerism was observed in part of samples. For detection and amplification of DNA extracted from tissues and cell cultures I used quantitative real-time PCR and SRY gene located on the Y chromosome as a marker of fetal cells. I detected the presence of male fetal cells. Fetal genome was found in both tumor and control tissues. More frequently SRY gene was detected in controls compared with endometrial tumors. On the contrary, in endometrial tumors was quantitatively higher number of copies of the SRY gene in comparison with control tissues. Using statistical tests, I demonstrated that endometrial tumors with a worse prognosis (G3) have a significantly higher concentration of fetal microchimerism in comparison with tumors with better prognosis (G1). In the future, the rate of fetal microchimerism in endometrial tumors, could become one of the prognostic marker. The relationship between fetal microchimerism and stage of endometrial tumor, age of patients and controls at the time of sampling, frequency of pregnancy and BMI was not found.

Key words: fetal microchimerism, gynecologic malignancies, endometrial cancer, quantitative real-time PCR