

## ABSTRACT

### *Introduction*

Prenatal care aims to assess the course of pregnancy, predict fetal defects, and preventive health care. Screening allows early detection of genetic defects or anatomical abnormalities in the fetus, which enables appropriate treatment and reduces the risk of complications. Amniocentesis is an invasive, diagnostic prenatal procedure that allows a sample of amniotic fluid to be taken and the embryonic cells within it examined. It is reserved for women with an increased risk of having a baby with a cytogenetic disorder. Amniocentesis carries a risk of complications, such as amniotic fluid drainage, but allows for accurate diagnosis of fetal diseases. Before the procedure, a woman must be thoroughly informed of the risks, advantages, and limitations. This study aims to evaluate the association of amniocentesis with the course of pregnancy and perinatal outcomes.

### *Material and method*

A retrospective case-control study was conducted on a group of 1834 patients who underwent prenatal testing. After verification of the criteria, 109 patients were classified into the study group and 122 into the control group, which was randomly selected according to age, body mass index, and fertility. The study was conducted between 2016 and 2022 at the Regional Hospital in Kielce. Data on the course of pregnancy and delivery, the condition of the newborn, and the karyotype evaluation of the study group were also collected and analyzed.

### *Results*

No statistically significant differences were observed between the study and control groups in any variable concerning the course of pregnancy and delivery and the newborn's birth status. In the analysis of endpoints, it was found that 1.90% of patients in the study group experienced a miscarriage, while no such case was reported in the control group. However, this difference was not statistically significant. Less than 1% of patients in both groups experienced premature drainage of amniotic fluid, and no statistically significant differences were observed. Rupture of the amniotic membranes earlier than one hour before the onset of labor occurred in 3.80% of patients in the study group and 8.20% in the control group, but no statistically significant differences were observed. Preterm labor (<37 weeks' gestation) occurred in 8.33% of women in the study group and 5.74% in the

control group, but no statistically significant differences were observed. In the final analysis, all occurrences of complications in both groups were grouped. Complications were observed in four cases from the study group (4.17%) and in three cases from the control group (2.46%). The difference was not statistically significant.

### *Conclusions*

Amniocentesis is a safe and effective test for verifying prenatal results. Studies have shown that the risk of complications is low and has little impact on the course of pregnancy or the health of the baby. A comparative analysis between the test and control groups can help assess the safety, efficacy, and impact of the procedure on the course of pregnancy and the health of the baby, but it should be remembered that it is one of many tools for evaluating the effectiveness of medical procedures.