Abstract: Background: Pregnancy is a condition in which new cardiac arrhythmias can occur or prior undiagnosed arrhythmias may provide symptoms. The occurrence of severe ventricular arrhythmias and polymorphic ventricular tachycardia that may lead to fainting or sudden cardiac death is promoted by the prolongation of the QTc interval. The post-partum adaptation period is the most arrhythmogenic. TpTe (Tpeak-Tend interval) is a novel marker of arrhythmogenesis by many considered a more sensitive marker than QTc. Objective: The aim of our work was to determine the TpTe interval (Tpeak-Tend) in women in the first, second and third trimester of pregnancy and the post-partum period. Materials and Methods: The study group consisted of 128 women in pregnancy or postpartum and a control group of 32 non-pregnant women. A standard 12-lead ECG (electrocardiograph) recording with evaluation of the duration of TpTe and QTc was performed in all patients. Results: In comparison to the non-pregnant women, higher values of QTc and TpTe were observed starting in the first trimester with highest values observed in the postpartum period. Mean duration of TpTe interval during pregnancy (81.59 ± 5.92 ms) and in the whole study group (pregnancy + postpartum) (85.46 ± 6.45 ms) was significantly longer ($p < 0.001$) compared to the TpTe interval in the control group (74.06 ± 6.14 ms). During pregnancy and postpartum, the increase in the TpTe interval in comparison to the increase in the QTc parameter (31.10% vs. 4.18%) was significantly higher ($p < 0.001$). Conclusions: The study showed an increase in the duration of the TpTe interval and QTc parameter during pregnancy and postpartum with the highest values in the postpartum period. TpTe interval increase was significantly higher compared to QTc increase during pregnancy and postpartum. Changes of TpTe interval were not associated with any clinical outcome or measure of arrythmia burden. Further studies are needed in order to see the clinical significance of these ECG findings, in particular for larger groups of patients with automatic measurement in correlation with echocardiography