Recurrent the prevalence of rpl in pregnant women

Recurrentpregnancy loss (RPL) is one of the most important abnormalities duringpregnancy which, in its definition should be considered two features: 1- Occurrenceof at least two successive miscarriages in previous pregnancies 2- These miscarriagesoccurred before the 20th week of gestation. The prevalence of RPL in pregnantwomen is about 1-5%. Several causes have been reported for this disorder, ofwhich the most important are: Genetic abnormalities, immune and biochemicaldisorders, thrombophilia, infections, uterine anatomical disorders, andlifestyle. However, more than 50% of cases, the causes remain unknown, which iscalled unexplained recurrent pregnancy loss (uRPL).

Cell free DNA and RNA inmaternal plasma can be important as non-invasive biomarkers in controllingpregnancy and diagnosing pregnancy-related disorders and one of these RNAs is non-codingRNAs. MicroRNAs (miRNAs), as a type of small non-coding RNAs, are involved in theprocess of inhibiting the expression of genes by two ways: blocking translationand breaking of mRNA. The miRNAs are derived from a miRNA precursor, which, after processing through molecule complexes of Dorsha (in nucleus) and Dicer(in cytoplasm), situated in a RNA-induced silencing complex (RISC). The detectionof target mRNAs is carried out by this complex. Many studies have shown theinvolvement of miRNAs in pregnancy and RPL. These can play different roles inthis reproductive disorder, as mentioned below: by reducing the expression ofgenes, miRNAs can cause abortion, for example, by reducing the expression ofgenes, miRNAs can cause miscarriage. For example, miR-133a is upregulated inpatients with recurrent miscarriage, and can lead to abortion throughdecreasing the HLA-G expression at the protein level.

Also, in specificpopulations, some polymorphisms of miRNAs have different expressions, so thiscan increase the risk of RPL in those populations. In 2012, a study showed thatin patients with spontaneous abortion, microRNA polymorphisms (miR-146aC> G, miR-149T> C, miR-196a2T> C and miR-499A> G) are considered as a risk factorsof RPL. On the other hand, circulating miRNAs can play a biomarker role in thedisorder, as shown in the study by Qin et al., that five miRNAs can be as diagnosticbiomarkers for RPL.