SCOPE OF THE STUDY

It is an universally known and practiced custom to avoid consumption of any drugs during pregnancy. This is mainly due to the fear of teratogenicity – i.e. induction of developmental abnormality in the fetus. The effect of teratogens will be based on the stage of pregnancy. If the teratogenic exposure took place during second trimester (period of organogenesis), it would result in the abnormal development of organ system. On the other hand if the exposure took place during third trimester (period of growth and differentiation), it would result in reduced growth of organs.

In spite of the golden rule to avoid any drug during pregnancy, there are situations in which it has to be overlooked. Examples of such situations are maternal diabetic, epilepsy, anxiety, asthma etc. In such conditions, clinicians used to prescribe the necessary drugs irrespective of the stage of pregnancy as they consider the benefit of such drugs outweigh the potential teratogenic risk associated with them. They seldom enter into the debate of allowing the pregnancy to continue (with the supplementation of necessary drugs) or to terminate it for want of avoiding the possible congenital anomalies. The dilemma about this condition is mainly due to the lack of comprehensive studies on the effects of these drugs in the developing fetus.
Although there are many studies on the effects of various drugs on various organ systems, the effects of psychoactive drugs on CNS development are not many. This lacuna provides ample scope to pursue studies to determine the effect of psychoactive drugs like DZP on the developing CNS. It is noteworthy to mention here that there are animal studies, which indicate DZP is beneficial when given to pregnant mother under stress. In such studies, the potential harmful effects of DZP would be masked as the benefit of overcoming stress might overweight the risk.

Under these circumstances, the aim of the present study is to evaluate the effects of DZP exposure at various stages of pregnancy on the fetal brain development in the absence of any stress to the pregnant mother. The study was conducted using rats as the non-human mammalian model.

DZP exposure to pregnant rats shall be carried out under four different regimes viz. first trimester (1\textsuperscript{st} day to 7\textsuperscript{th} day), second trimester (8\textsuperscript{th} day to 14\textsuperscript{th} day), third trimester (15\textsuperscript{th} day to 21\textsuperscript{st} day) and throughout the pregnancy (1\textsuperscript{st} day to 21\textsuperscript{st} day). By these combinations, it is expected to elucidate the effect of DZP on the various stages of brain development.

It has been intended to follow up the effects of DZP on the developing brain by studying the histological sections (to determine the anatomical abnormalities induced), sodium and potassium ion estimation in the serum and brain (to determine the microenvironment changes) and behaviour observations (to determine the abnormalities in the establishment of neuronal connections).