Cyclophosphamide (CP) is a potent cytotoxic and immuno-suppressive drug. However, this develops numerous side effects both in animal and humans studies. The mechanism that results in CP-induced tissue injury is still unclear and there is evidence that reactive oxygen species could be responsible in the pathophysiology associated with the inflammatory response.

The role of CP on lipid peroxidation and antioxidant activities in embryonic development is very limited. The embryonic tissue injury could be due to the increased lipid peroxide during CP treatment during pregnancy.

We intend to study the role of endogenous antioxidants against CP-induced oxidative damage. This study is further extended to supplementation of exogenous antioxidants (vitamin-C) against CP-induced damage and X-irradiations.

The finding of protection (or) damage, depending on the duration and dose of CP can provide insight into possible mechanism for a negative health effects linked to long-term and short-term CP and irradiation exposures.

We used amniotic fluid that can be used as an indicator for drug toxicity in future. The use of chick model for toxicological and pharmacological studies is promoted, as the mother does not influence the pharmacokinetics of the drug.

AIMS AND OBJECTIVES

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OBJECTIVES

The present study was taken up with the following objectives

Part I: Long-term studies of cyclophosphamide on the chick embryo

a) to study the embryotoxic effect of cyclophosphamide in chick embryo.

b) to study cyclophosphamide-induced oxidative stress in chick embryo.

c) to investigate the biochemical changes in chick embryo with cyclophosphamide treatment

Part II: Short-term studies on chick embryonic development

a) to study chemoprotective role of exogenous antioxidant (vitamin C) in chick embryos after cyclophosphamide treatment.

b) to investigate the elevation of antioxidant levels after X-irradiation and cyclophosphamide treatment.