

EFFECT OF DEXAMETHASONE ON THE DISTRIBUTION OF COLLAGEN FIBERS IN THE PREGNANT RAT'S UTERUS : A HISTOLOGICAL STUDY

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ABSTRACT : Dexamethasone as a drug has many clinical usages. It is usually given to the patient before operation to prevent some postoperative complications such as vomiting and nausea. The most widespread use of glucocorticoids is in asthma and inhaled dexamethasone. Dexamethasone is used by patients who are taken chemotherapy for treatment of cancer. Dexamethasone treatment is used by pregnant women for prevention of the respiratory distress in premature delivery. To determine the effect of dexamethasone on distribution of collagen fibers in the pregnant rat uterus during the implantation period on days 7 and 10 dpc (day post coitum). Sixty female rats of confirmed pregnancy have been divided in to two treated groups (48 rats) received intraperitoneally (i/p) 0.2\kg and 0.4 mg \kg dexamethasone respectively and one control group (12 rats) received normal saline via the same route. Histological technique was applied for sections taken from implantation sites at days 7 and 10dpc.the sections were stained in Gomori's one step trichrome stains. Blastocysts were able to implant successfully and have initiated the implantation reaction and decidualization in the uteri of all rats used. As a normal reaction on day 7 dpc collagen fibers was found to be virtually absent in the decidual tissue of primary decidual zone (PDZ) and secondary decidual zone (SDZ)in contrast to undifferentiated zone(UDZ) in which the fibers was widely distributed. On day 10dpc collagen fibers were abundant in the mesometrialdecidual zone (MDZ). Collagen fibers were an important support to the blood vessels in this area which represents a prime route for establishment of nutrient supply through maternal blood vessels supplying the chorioallantoic placenta of rat. The results have revealed that i/p injection of dexamethasone did not interfere with the normal process of implantation of rat blastocyst.

Key words : Dexamethasone, rats, implantation, decidual tissue and collagen fibers.

INTRODUCTION

Collagen is considered as the most widely distributed connective tissue protein in the uterus (Junqueira and Carneiro, 2005). In most species and depending on their reproductive state, adaptive phenotypic changes occur in the uterus, modulated by hormonal variations and mechanical influences that modify its shape (size and weight) and biomechanical properties (distension and growth) (Salinas *et al*, 2016).

Dexamethasone (Dx) is a long acting glucocorticoid. It has been used in the treatment of many conditions, including rheumatic problems, a number of skin diseases, severe allergies, asthma, chronic obstructive lung disease, croup, brain swelling, and along with antibiotics in tuberculosis (Ahmadabad *et al*, 2016). Liggins and Howie (1972) were the first to put into clinical practice dexamethasone as a drug of choice to enhance the development of lung to the pregnant mothers who are in a condition of threatened abortion after 26th week of

pregnancy. Since that time the use of dexamethasone for such condition became a common practice among the obstetricians.

The question, which has been repeatedly been asked: is the use of Dx for varieties of clinical considerations, during pregnancy, associated with an increasing risk for interfering with implantation and subsequent success of pregnancy and a cause of congenital malformation or not?. Dx is commonly used as steroidal anti-inflammatory drug (Shaikh *et al*, 2012). Many researchers (Michael and Papageorghiou, 2008; Edwards and Burnham, 2001) have stated that Dx used during the first trimester does not represent a major teratogenic risk. Systemic administration of Dx at the time of implantation was associated with retarded fetal development (Gur *et al*, 2004). Normally the process of implantation is marked by development of decidual tissue (Bell, 1983; Finn, 1977). As a consequences to implantation, changes in the distribution of fibrillar components of the extracellular matrix have been noted in morphological studies of the