UNIVERSITI TEKNOLOGI MARA

THE EFFECT OF FOOD RESTRICTION ON ARTIFICIALLY STIMULATED DECIDUAL CELLS IN PSEUDOPREGNANT RATS

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Dissertation submitted in partial fulfillment of the requirement for the

Degree in Bachelor of Pharmacy

Faculty of Pharmacy

2014

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ACKNOWLEDGEMENT

In completing this report, there are few peoples, lecturers and academicians have been contacted for reference. I was asking for knowledge and help from them in order to complete this project research. Apart from that, I wish to express my sincere appreciation to my supervisor of this project, Madam. Massita binti Nordin who gave me some guide in doing a research, encouragement and positive comment during my project progress. Without them, this project research cannot be completed.

Besides, I would like to express my thankful to my fellow friend whether from UITM Puncak Alam or other universities for giving me support and guidance from inside and outside. Not to forget, my family member who give me encouragement in doing this project. Although there is least contribution from them, it slightly helps me to improve my project report. I would like to ask for forgiveness if there is some misunderstanding part in this project report.

Last but not least, I want to give my thanks and gratitude to final year project coordinator, Dr. Shihabuddin and En Azani who always update the flow of final year project progress.

ABSTRACT

The artificially stimulated decidual cell reaction or DCR is commonly used as a model for the study of changes occurring in the uterus during, before, and after implantation. The purpose of this investigation was to identify the population of these cells affected by food restriction at certain time period. The rats were assigned into three groups of treatments: (i) day 1 to 5 of pseudopregnancy (before implantation), (ii) day five to nine of pseudopregnancy (after implantation), (iii) day one to nine of pseudopregnancy (both before and after implantation) and one control group which was given the pellet food ad libitum. The treatment groups were given 11 gram of pellet food per day on the day prescribed. Then decidualization was induced by injecting 1mL of corn oil into one of the uterine horn intraluminally. The decidual cells growth was assessed by measuring the fresh weight of stimulated uterine horns. The experiments have been carried out and the results showed that the food restriction treatment does reduced the decidual cells growth. The average of percentage weight of traumatized horns per body weight of control group was 0.72. Meanwhile the average of percentage weight of traumatized horns per body weight of food restriction group of day one to five, five to nine and one to nine of pseudopregnancy are 0.6579, 0.6208, and 0.5806 respectively. From the results obtained showed that the longer the food restriction time, the lighter the weight of the weight of traumatized horns.

CHAPTER 1

INTRODUCTION

Dietary restriction is defined as a reduction of particular or total nutrient intake. It is believed that the restricted food intake has caused impairment in the reproductive structure and function in mammalian animals (Abecia et al., 2006). The effect of food restriction on reproductive system includes reduced in weight of the reproductive organs such as the ovaries and uterus, and the delayed in onset of puberty and ceased in ovulation (Lintern-moore et al., 1978). Starvation also caused the size and composition of ovarian follicle population to decrease (Zimmerman et al., 1960).

In societies, the nutritional infertility has become very common where the person is failed to eat enough in order to match with their expenditure of energy in daily life and anorexia nervosa is a clinical case usually present in such person (Kumar & Kaur, 2013). Based on 12 cumulative studies on anorexia disorder incidences, there were 19 per 100,000 in females and two per 100,000 in males per year in general population (Pawluck & Gorey, 1998). Anorexia nervosa disorder can cause abruption to the reproductive system, failure in kidney function, reduced in cardiac activity, and intestinal tract ulcers (Hoffman et al., 2012).

The concern of this study is to determine the effect of food restriction on the reproductive system especially the deciduomal cell reaction in the endometrial lining. The findings obtain in this experiment might be useful as the evidence to show that the food restriction or undernutrition are related to the decrease in normal function of the reproductive system.