

A METHOD REVIEW OF SURGICALLY INDUCED HYPERTENSION IN PREGNANT RATS MODEL: MODIFIED REDUCED UTERINE PERFUSION PRESSURE (RUPP)

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ABSTRACT:

Background: There are various animal models used in the study of pregnancy-associated hypertensive disorders. RUPP is one of the methods used to induce hypertension via surgical procedure by clipping both ovarian and uterine arteries with specified internal diameter of silver clip. In this study, we modified the method by using a surgical suture instead of clip.

Purpose: The objective of this study is to establish hypertension in a pregnant rat model by using a modified method of RUPP.

Methodology: Three female Sprague-Dawley rats were used. One of them was non-pregnant rat (C) and the other two rats (R1 & R2) were mated. The establishment of pregnancy were confirmed with the visualization of sperm and it was recorded as D0 of gestation. On D14 of gestation, both uterine and ovarian arteries were tied in R1 by using a suture while in R2, only uterine arteries were tied. Blood pressure was measured via tail-cuff method at D20 of gestation.

Result: Complete fetal resorption occurred in R1 and R2 died post-operatively due to infection.

Conclusion: This method caused high morbidity and mortality and we could not establish hypertension in pregnant animal model. The alternative methods for induction of hypertension in pregnant animal model are by using a drug that inhibit Nitric Oxide synthase (L-NAME) or by genetic manipulation.

Keywords: RUPP, hypertension, pregnant

Acknowledgement: IIUM Research Acculturation Grant Scheme (IRAGS)