

C 636.089607

E16.

ACKNOWLEDGEMENTS



It is my great pleasure to express my
EFFECTS OF EXOGENOUS ANDROGEN AND ANTIANDROGENS

ON THE EPIDIDYMISS OF THE RAT
supervision and encouragement given
during the course of my work. I am greatly indebted to Professor
S.T. Fernando for giving me the opportunity to carry out this
work in the Faculty of Veterinary Medicine and Animal Science.

My sincere thanks to Mohammad Azim Ebrahimi members of the staff in
the Department of DVM (Kabul, Afghanistan) for their cooperation and
encouragement during this study.

A thesis submitted for the degree of

Mr M.A. Navaratne and Mrs K. Wijetunge gave valuable
assistance in the laboratory. In addition, Mrs Wijetunge typed
the thesis MASTER OF PHILOSOPHY Navaratne prepared the

illustrations. I am extremely grateful to them for their support
and cooperation. I also wish to thank Mr J. Mahawatta for

in the

Faculty of Veterinary Medicine and Animal Science

University of Peradeniya

University of Peradeniya

I would like to thank the Head, Animal House, Professor

A. Jayasinghe, the staff of the Animal House and the WHO research

unit for providing the animals and for their willing help in

the procurement and handling of the animals.

March, 1985

My thanks are also due to all members of the staff

in the faculty of 383619 Medicine and Animal Science and

SUMMARY

The aim of the present study was to firstly review the current state of knowledge on epididymal structure and function, and secondly to evaluate the effects of potential fertility regulatory drugs on reproduction with special emphasis on the epididymis. Three drugs, namely the synthetic androgen testosterone propionate (TP), the steroidal antiandrogen cyproterone acetate (CA) and flutamide (F) a non-steroidal antiandrogen were investigated, over a treatment period of 30 to 70 days.

TP caused a decrease in the weight of the testis and epididymis. A decrease was seen in the general motility of epididymal spermatozoa and in the epididymal sperm reserve (ESR). The percentage abnormality of spermatozoa in the epididymis was increased. Histological changes in the epididymis included the appearance of abnormal cells in the luminal content and the vacuolation of the epithelium. The testis was characterized by pyknotic cells in the germinal epithelium and a reduction in the number of interstitial cells. It is thought that TP through pituitary suppression, causes atrophy of Leydig cells, and that the exogenous TP is unable to meet the demands of the epididymis which seems to require a much higher level of androgen than the accessory organs.

Histochemically the distribution of acid phosphatase in the epithelium was unaffected by TP treatment, but luminal cells showed heavy deposits of reaction product and the latter may be associated with phagocytic activity. Alkaline phosphatase activity exhibited a slight increase. Biochemical studies showed a pronounced increase in alkaline phosphatase activity and a marginal decrease in acid phosphatase activity.

In general the effects produced by CA were similar to those produced by TP. However, unlike with TP the weights of the accessory glands too were decreased, which is not unusual since an exogenous supply of androgen is not available in this situation. CA was capable of complete suppression of fertility which could be a result of azoospermia. The lack of libido may also be a contributory factor to the suppression of fertility.

As illustrated in Fig. 1 is truly alarming. The world population which stood at 4.4 billion at the beginning of this century is expected to reach 6.2 billion by the year 2000 - an increase of 40%. This has drawn much attention in view of the global health problems reported by the World Health Organization of health problems by the year 2000. The impact of the increase in population is felt mostly in the third world countries where the supply of food falls far short of demand. An inevitable consequence of the clash between population growth and inadequacy of food is a degradation in the quality of life. Today, millions of people are living in extreme poverty, where life is a non-