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BLOOD GLUCOSE LEVELS IN CATTLE IN
RESPONSE TO DIFFERENT FORMULATIONS OF
BETAMETHASONE

A THESIS PRESENTED IN PARTIAL FULFILMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF PHILOSOPHY IN VETERINARY SCIENCE
AT MASSEY UNIVERSITY

BY

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AUGUST 1981

(THIS THESIS REPRESENTS 25% OF THE
ASSESSMENT OF THE CANDIDATE)

ABSTRACT

The hyperglycaemic response in adult cows to the subcutaneous injection of betamethasone at 0.04mg/kg body weight was studied using four different formulations of the drug. These were Betsopart and Betsolan, aqueous suspensions of betamethasone of 10mg/ml and 2mg/ml respectively and 5mg/ml and 2mg/ml preparations produced by diluting Betsopart with water immediately prior to injection. Four treatment groups and one control group each of four cows were bled daily for 12 days with the betamethasone being given on day 4. All trial blood samples were collected using fluoride-oxalate as anticoagulant which was shown to result in lower plasma glucose levels than in EDTA plasma or serum.

Daily plasma glucose concentrations were determined using 3 analytical methods. The alkaline ferricyanide method, as anticipated, gave higher glucose levels than the glucose oxidase method, and unexpectedly, the oxygen electrode method also overestimated the glucose concentration.

Despite differences in the analytical methods it was shown that the 10mg/ml Betsopart and the two 2mg/ml preparations (Betsolan and diluted Betsopart) gave similar peak plasma glucose concentrations while the 5mg/ml diluted Betsopart gave a significantly higher peak. The longevity of the hyperglycaemia was greatest in the 10mg/ml and 5mg/ml treated groups and less in the two 2mg/ml groups.

ACKNOWLEDGEMENTS

I am deeply indebted to my supervisor Mr J.V. Pauli for his enthusiastic interest, encouragement, guidance and great help throughout this study. I would like to express my special thanks to Dr R.M. Greenway, Department of Chemistry, Biochemistry and Biophysics, for his supervision and valuable advice throughout this work.

I owe my sincere thanks to Professor R.E. Munford, Department of Physiology and Anatomy, for his advice and help with the statistical analysis.

My thanks are also due to Professor E.D. Fielden, Dean of the Faculty of Veterinary Science and Glaxo Laboratories (N.Z.) Ltd for their interest and financial assistance with this experiment.

I would like to thank Dr McKenzie, Department of Dairy Husbandry, for the use of the glucose analyser instrument; Miss G. Borrie and Mrs J. Rumbal for their co-operation and technical help; and Mr S. McDiarmid for his advice in pharmacology. I am also grateful to the Government of the Socialist Republic of the Union of Burma for the grant offered under the World Bank loan programme.

Finally my appreciation is due to my devoted Oo and parents at home for their encouragement and love.

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