

**Brief Communication**

**BIOCHEMICAL CHANGES FOLLOWING BILATERAL NEPHRECTOMY IN THE OVINE**

Bilateral nephrectomy via incision in the right flank was carried out in three sheep in order to prepare renin-free plasma with a high concentration of renin substrate (*Skinner et al.* 1975) to be employed in renin analysis on human plasma. The biochemical changes in the peripheral blood was followed over a period of 7 days.

It was striking that the clinical conditions did not deteriorate markedly over the 7 days' period of anuria. The only obvious clinical signs were onset of anorexia and reduced water intake with a gradual cessation of rumination. After 144 h one sheep (No. 42) died spontaneously without preceding decline in the clinical conditions.

In regard to clinical pathology the concentration of blood urea exhibited a rapid and almost linear increase of about 12 mmol/day (Fig. 1). Plasma K increased about 100 % during the 7 days, whereas there was no obvious change in plasma Na. Plasma Ca showed in one sheep (No. 42) an almost 50 % increase in the

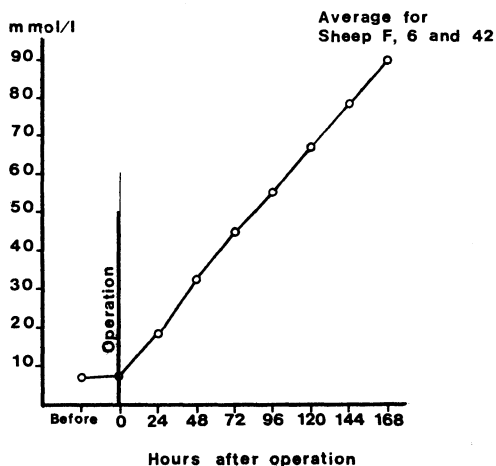


Figure 1. Nephrectomy. Blood urea.

first 48 h followed by a decline to a steady hypocalcemic level of about 1.3–1.5 mmol/l. The other sheep (No. 6) (plasma Ca values were missing for one sheep) had hypocalcemic values (1.3–1.4 mmol/l) and stayed at levels between 1.2 and 1.5 mmol/l. The values for inorg. P showed a moderate decrease (about 50 %) except in sheep No. 42 which died spontaneously (Fig. 2). In this sheep the inorg. P value after an initial decrease increased until death.

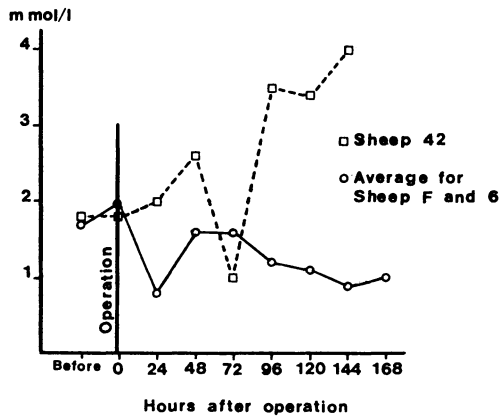


Figure 2. Nephrectomy. Inorg. P.

Plasma magnesium values showed a steady slow increase from av. values of 1.15 mmol/l to values about 1.50 mmol/l.

There was evidence of a hemoconcentration in the first 24–48 h after the nephrectomy.

In conclusion it should be emphasized that these sheep underwent bilateral nephrectomy primarily for the production of renin substrate. The biochemical data were obtained incidentally to this procedure and consequently were not investigated exhaustively. The data showed, however, that sheep like the bovine species have a slower deterioration in their clinical condition than non-ruminants in similar circumstances (*Watts & Campbell 1970*). Following nephrectomy horses promptly develop marked hypercalcemia and hypophosphatemia (*Tennant et al. 1974*), whereas calves (*Watt & Campbell 1971*), rats (*Boyle et al. 1973*) and, as seen here, sheep react with hypocalcemia. The hypocalcemia may be due to removal of the mechanisms for the synthesis of metabolites of vitamin D (*Omdahl & DeLuca 1973*).

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