Using this procedure a precision of 14.9% (coefficient of variation) was obtained at 250 picograms injected on column. The detection limit was set at 500 pg/injection for plasma samples, corresponding to a value of 62.5 pg/ml of plasma (for a 20 ml sample). Over the range 0 to 10,000 picograms a linear and quantitative recovery of 6-keto $PGE_{1\alpha}$ was observed. The assay has been applied to the determination of circulating levels of 6-keto $PGF_{1\alpha}$ during PGI_2 infusions in man and to the production of 6-keto $PGF_{1\alpha}$ by perfused dog lung. The results obtained when isolated left lung (wet weight 147 ± 7.3 g) of male greyhound dogs are perfused *in vitro* (volume of perfusion system 1.5 litres) with tyrode solution containing 4% w/v bovine serum albumin are shown in Table 1. It can be seen that the circulating level of 6-keto $PGF_{1\alpha}$ increases with time, indicating that the lung preparation is continuously producing 6-keto $PGF_{1\alpha}$, an indicator of PGI_2 production.

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A model of transient neutropenia in the rat

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The severe but transient neutropenia occurring in man, for example during haemodialysis and nylon fibre leukapheresis, has been attributed to neutrophil aggregation and margination caused by C5a released during complement activation (Nusbacher, Rosenfeld, Macpherson, Thiem & Leddy, 1978; Hammerschmidt, Craddock, McCullough, Kronenberg, Dalmasso & Jacob, 1978). We have shown this effect to occur in the rat following the intravenous administration of either zymosan activated serum (ZAS) or the synthetic tripeptide N.formyl methionyl-leucyl-phenylalanine (FMLP). The effect of some conventional anti-inflammatory drugs on this response have also been studied.

Female albino rats (150–200 g) were anaesthetized with a mixture of urethane and pentobarbitone (i.p.). One h later a 0.5 ml blood sample was obtained by cardiac puncture. After 5 min the animals were given an intravenous injection of either ZAS or FMLP, further blood samples being taken 1 min and 5 min after injection. Dilutions of citrated blood were made in ammonium oxalate (1:10). Total counts and differential cell counts on 500 cells were performed on each sample by standard techniques, and the results calculated as percentage changes in neutrophil cell numbers.

The i.v. injection of ZAS or FMLP resulted in a dose related transient neutropenia which was maximal 1 min after injection. Neutrophil counts normally reached pre-injection values after 5 minutes. The reduction in the number of circulating neutrophils was shown not to be due to the experimental procedures. The total white cell counts did not change significantly during the response.

The degree of neutropenia obtained in control animals was not significantly altered in experimental groups pretreated with either colchicine (2 mg/kg p.o.) or hydrocortisone sodium succinate (10 and 30 mg/kg i.m.) 1 h prior to the experiment, or indomethacin (3 mg/kg p.o.) daily for 5 days and 1 h prior to the experiment. The addition of hydrocortisone sodium succinate to serum (3–12 mg/ml) prior to activation with zymosan resulted in a dose related inhibition of the neutropenia. This inhibition was not observed if the steroid was added to the serum after zymosan activation.

The results suggest that the animal model used in the present study may simulate the cellular response observed in man during haemodialysis, nylon fibre leukapheresis and shock lung. It has not been established whether the neutropenia is an aspect of the inflammatory process in general and the model appears to be of little use in investigating possible mechanisms of action of anti-inflammatory drugs *in vivo*.

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