In conclusion therefore DOCA and saline produced an elevation in blood pressure which was associated with an increase in both cardiac output and peripheral resistance and an expansion of plasma and extracellular fluid volumes. β-Adrenoceptor blockade did not prevent the development of DOCA/saline hypertension in spite of the fact that it prevented a rise in cardiac output.

References

COLEMAN, T.G. & GUYTON, A.C. (1969). Hypertension caused by salt loading in the dog: III. Onset transients of cardiac output and other circulatory variables. *Circ. Res.*, **25**, 153–160.

COWLEY, A.W. & GUYTON, A.C. (1975). Baroreceptor reflex effects on transient and steady-state haemodynamics of salt loading hypertension in dogs. *Circ. Res.*, **36**, 536–546.

The presence of prostaglandin-like material in carrageenin induced rat hind paw inflammation

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The involvement of prostaglandins (PGs) in the delayed phase of carrageenin hind paw oedema (Di Rosa, Giroud & Willoughby, 1971) is generally accepted. Direct evidence for this assumption is based on bioassay of exudate, squeezed out of amputated inflamed paws (Willis, 1969). However, data on non-inflamed paws or on time of collection were not reported. These omissions are important since tissue damage and concomitant platelet aggregation are likely to produce PGs. To avoid this pitfall we used a coaxial perfusion technique (Rocha e Silva & Antonio, 1960) to collect part of the exudate.

Male Wistar rats (180–250 g) were anaesthetized with urethane (25%) – chloralose (2%). Polythene cannulae (diameter 3 mm) were inserted, subcutaneously, through a small incision in the lateral skin of the tarsus, and pushed into the subplantar region. Perfusion with 6% dextran in sterile pyrogen-free saline was carried out with an innercannula (diameter 1 mm) extending 3–4 mm. After removal of traces of blood (30 min, 4 ml/h), the perfusion was continued (30 min, 2 ml/h) to obtain a basal measurement of PG-like activity (PGL). Thereafter, either sodium-carrageenin (0.1 ml, 1%) or saline was injected subplantarly. Biological activities in perfusates, collected (30 min, 2 ml/h) at different times after these injections, were tested directly on a cascade of isolated tissues (rat stomach, rat colon and cat jejunum) in the presence of appropriate antagonists. No serotonin (<1 ng/paw) or bradykinin-like activities (<0.5 ng/paw) were detectable. The results concerning PGL are given in Table 1.

Table 1 Collection of prostaglandin-like activity (PGL) from rat hind paws before (–30 min) and after treatment with carrageenin or saline

Treatment Perfusion time	*Saline PGL (ng PGE_2/paw)*	*Carrageenin PGL (ng PGE_2/paw)*
–0.5–0 h	<1.0 (8)	<1.0 (10) 1.1 (1)
1–1.5 h	<1.0 (2)	<1.0, 1.3 (2)
2–2.5 h	<1.0 (2)	2.0 (1)
4–4.5 h	<1.0 (2)	2.9 ± 0.3 (4)*
6–6.5 h	<1.0 (2)	3.3 ± 1.2 (4)*

The values are expressed as ng PGE_2/paw since the efficiency of the perfusion in removing PGs from the exudate is difficult to estimate. All values are means ± s.e. mean. The numbers of observations are given in brackets. * $P < 0.05$, when compared with zero-time controls. (Mann-Whitney *U* test, one-tailed).

These data directly support the assumption (Di Rosa *et al.*, 1971) that PGs are present in the late phase of carrageenin oedema. However, the total amount *in situ* is probably higher. Since PGL was undetectable in saline pretreated paws it is unlikely that tissue irritation by the prolonged presence of cannulae is a source of PGL under these conditions. Similar results were obtained with lipid extracts from perfusates, collected at 4 h after carrageenin or saline injection when cannulae were installed immediately after sacrificing the rats or immediately after indomethacin pretreatment (2 mg/kg i.v.) of rats under pentobarbitone anaesthesia.

References

DI ROSA, M., GIROUD, J.P. & WILLOUGHBY, D.A. (1971). Studies on the mediators of the acute inflammatory response induced in rats in different sites by carrageenin and turpentine. *J. Path.*, **104**, 15–29.

WILLIS, A.L. (1969). Parallel assay of prostaglandin-like activity in rat inflammatory exudate by means of cascade superfusion. *J. Pharm. Pharmac.*, **21**, 126–128.

ROCHA E SILVA, M. & ANTONIO, A. (1960). Release of bradykinin and the mechanism of a 'thermic edema (46.5°C)' in the rat's paw. *Med. exp. (Basel)*, **3**, 371–382.