the exact relationships are between α-adrenergic and 5-hydroxytryptaminergic receptors on vascular smooth muscle cells of the hypertensive blood vessel wall.

REFERENCES

Apperley, E., Feniuk, W., Humphrey, P. P. A., Levy, G. P. (1980) Br. J. Pharmacol. 68: 215–224

Apperley, E., Humphrey, P. P. A., Levy, G. P. (1976) Ibid. 58: 211–221

Cohen, M. L., Fuller, R. W., Wiley, K. S. (1981) J. Pharmacol. Exp. Ther. 218: 421–425

Colpaert, F. C., Niemegeers, J. E., Janssen, P. A. J. (1982) Ibid. 221: 206–214

Fozard, J. R. (1982a) Br. J. Pharmacol. 75 (suppl.): 142P

Fozard, J. R. (1982b) J. Cardiovasc. Pharmacol. 4: 829–838

Humphrey, P. P. A., Feniuk, W., Watts, A. D. (1982) J. Pharm. Pharmacol. 34: 541

Janssen, P. A. J. (1982) in: Yoshida, H., Hagihara, Y., Ebashi, S. (eds) Advances in Pharmacology and Therapeutics II. Pergamon Press, Oxford, pp. 21–33

Kalkman, H. O., Timmermans, P. B. M. W. M., van Zwieten, P. A. (1982) J. Pharmacol. Exp. Ther. 222: 227–231

Leysen, J. E., Niemegeers, C. J. E., Van Nueten, J. M., (1982) Mol. Pharmacol. 21: 301–314

Peroutka, S. J., Snyder, S. H. (1979) Ibid. 16: 687–699

Persson, B., Hedner, T., Henning, M. (1982) J. Pharm. Pharmacol. 34: 442-445

Vanhoutte, P. M. (1978) in: Kaley, G., Altura, B. M. (eds) Microcirculation University Park Press, Baltimore, pp. 181–309

Vanhoutte, P. M. (1982a) in: De Clerck, F., Vanhoutte, P. M. (eds) 5-Hydroxytryptamine in Peripheral Reactions. Raven Press, New York, pp. 163–174

Vanhoutte, P. M. (1982b) TIPS 3: 370–373

Vanhoutte, P. M. (1983) Fed. Proc. Fed. Am. Soc. Exp. Biol. in the press

Vanhoutte, P. M., Van Nueten, J. M., Symoens, J., Janssen, P. A. J. (1982) Ibid. in the press

Van Nueten, J. M., Janssen, P. A. J., De Ridder, W., Vanhoutte, P. M. (1982) Eur. J. Pharmacol. 77: 281–287

Van Nueten, J. M., Janssen, P. A. J., Van Beek, J., Xhonneux, R., Verbeuren, T. J., Vanhoutte, P. M. (1981) J. Pharmacol. Exp. Ther. 218: 217–230

Van Nueten, J. M., Janssen, P. A. J., Vanhoutte, P. M. (1982) in: Bevan, J. A. et al (eds). Vascular Neuroeffectors and Other Smooth Muscles. Raven Press, New York, in the press

Webb, R. C. (1982) Clin Sci. in the press

Wenting, G. J., Man in't Veld, A. J., Woittiez, A. J., Boomsma, F., Schalekamp, M. A. D. H. (1982) Ibid. in the press

Zoccali, C., Zabludowski, J., Isles, C. G., Robertson, J. I. S., Fraser, R., Ball, S. G. (1982) Med. Res. Soc. Edinburgh 9: 19.7

J. Pharm Pharmacol. 1983, 35: 340
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The hypotensive action of ketanserin

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In the reply to our letter Professor Vanhoutte and Dr Van Nueten acknowledge that unequivocal evidence demonstrating a role of 5-hydroxytryptamine in hypertension in man is not available and that the α_1-adrenoceptor blocking action of ketanserin may contribute to its hypotensive action. They also quite rightly point out that the relative importance of ketanserin's blocking action on α-adrenoceptors and 5-HT receptors in the hypertensive blood vessel wall remains to be determined (Vanhoutte & Van Nueten 1983). This was precisely the reason for the main suggestion in our original letter (Humphrey et al 1982) that a 5-HT-receptor antagonist without α-adrenoceptor blocking activity should be tested clinically. Parenthetically it does not seem important in this context whether the 5-HT receptor involved is named a "D" or a "5-HT_2" receptor, although it is of academic interest. What is important, as we previously pointed out, is that other 5-HT_2- or D-receptor blocking drugs are clinically available but they are not used as antihypertensive agents. Whether this is because such drugs also have a concomitant agonistic effect which counterbalances any hypotensive effect is a matter of conjecture. It could equally be postulated that ketanserin, unlike the other 5-HT antagonists, has an additional hypotensive action as yet unidentified which is distinct from its 5-HT-receptor and α-adrenoceptor blocking activity. Since ketanserin is not unique in blocking receptors for 5-HT in the vasculature (Humphrey et al 1982; Cohen et al 1983) it seems *un*reasonable at present to assume that its efficacy *alone* in any given cardiovascular condition is evidence for the pathological involvement of 5-HT, a view shared by others (e.g. see Millar et al 1982; Reimann & Frölich 1983).

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REFERENCES

Cohen, M. L., Mason, M., Wiley, K. S., Fuller, R. W. (1983) Biochem. Pharmacol. 32: 567–570

Humphrey, P. P. A., Feniuk, W., Watts, A. D. (1982) J. Pharm. Pharmacol. 34: 541

Millar, J. A., Facoory, B. D., Laverty, R. (1982) The Lancet Vol 2: 1154

Reimann, I. W., Frölich, J. C. (1983) Lancet 1: 703–704

Vanhoutte, P. M., Van Nueten, J. M. (1983) J. Pharm. Pharmacol. 35: 339–340