

The value of determining concentrations of C3 and C4 as antigen has been debated by previous workers. C4 and to a lesser extent C3 are acute reactive proteins and sudden rises could be expected during the bypass procedure, which might tend to offset any depletion due to in vivo activation. A correction factor to take into account haemodilution from the pump prime must be applied, but it can be seen that true depletion occurred both in this study (fig 1) and in another.⁹

The role of corticosteroids has been little studied. No previous investigation has administered the drug in two doses to take account of the dilution shown by Thompson *et al.*²¹ In single dose studies in two patients,⁹ and in another in five patients,²² the authors concluded that steroids had no effect. Although we also could show no difference in activation in those patients who received the steroid compared with controls, the difference between men and women seen in the steroid group is of considerable interest. In the recent study by Boralessa and colleagues only men were examined.⁹ We cannot explain the apparent increase in complement activation seen in this subgroup but it is surprising, as steroids may suppress the immune response by their lysosome-stabilising activity.¹³ A previous study using a single dose of steroid found no difference in lung function.³ The role of pulsatile flow has not been elucidated here in relation to any complement related benefit. This study on a group of only 10 patients was sufficient for statistical analysis but requires extension before firm conclusions can be drawn.

It would be useful to relate change in complement activation to clinical outcome. Because of the many surgical factors an extremely large study would be necessary. In our study of 44 patients, three died in the perioperative period, all of whom had received methylprednisolone, but obviously no conclusion can be drawn. Our patients all underwent perfusion through a bubble oxygenator. This might be expected to cause both more trauma to the cellular elements of the blood and greater complement activation than a membrane oxygenator. Previous comparative studies²² have been too small to allow any conclusions to be derived.

Conclusion

We have confirmed that crossed immunoelectrophoresis is a reliable method of quantifying C3 activation in vivo provided that the technique described is followed. Complement activation of the order of 5% to 12% was detected in a significant number of patients during bypass and it is suggested that neither corticosteroids nor pulsatile flow effect this. The finding of increased levels of complement activation in women who received methylprednisolone might suggest caution with its use in this group of patients.

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ONE HUNDRED YEARS AGO Professor Haeckel's recent work on the lower forms of marine life in Ceylon contains an interesting passage on his experience as a diver amongst the coral reefs of that island. In order that he might thoroughly explore these remarkable formations, he learned to dive with his eyes open. The reality of this kind of exploit is less agreeable than the ideal. "The Oceanides, under whose protection these coral fairy bowers of the sea flourish, threaten the intruding mortal with a thousand perils. The Millepora, as well as the Medusae which float among them, burn him wherever they touch, like the most venomous nettles; the sting of the fish known as *Synanceia* is as painful and dangerous as that of the scorpion; numbers of crabs nip his tender flesh with their powerful claws; black sea-urchins (*Diadema*) thrust their foot-long spines, covered with fine prickles set the wrong way, into the sole of his foot, where they break off and remain, causing very serious wounds." Such were the Professor's experiences, as expressed in C Bell's English translation of *A Visit to Ceylon*. Any attempt to detach a piece of coral of necessity involves the risk of severe injury to the hand. What is, however, most interesting to all who are likely to visit the tropics is that a bath in a coral reef may involve serious inconveniences not encountered by sea-bathers in high latitudes. (*British Medical Journal* 1883;i:1050.)

Correction

Effects of pirbuterol and sodium nitroprusside on pulmonary haemodynamics in hypoxic cor pulmonale

An error occurred in this paper by Dr W MacNee and others (22 October, p 1169). The dose of intravenous sodium nitroprusside given to the patients was 1.5 µg/kg and not 1.5 mg/kg.