In both instances, clinical and haematological improvement was noted which was maintained in one of them. We thought that if this treatment had been started earlier in the second case the improvement may well have been sustained. However, in this instance a partial remission was achieved which was probably contributed by cytosine arabinoside. The synergistic effect of methoxy-9-ellipticine with other chemotherapeutic agents requires further evaluation. In view of the resistance of this form of leukaemia to present chemotherapeutic drugs both initially and at the time of relapse, we felt that the response of these patients to methoxy-9-ellipticine was worth reporting. However, any long-term effect cannot be excluded and in view of the poor prognosis of AML we feel a further trial of this drug is required.

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Intravenous trimethoprim/sulphadimidine in the treatment of Bacteroides septicaemia

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Summary

The name Bacteroides is used to describe a group of Gram-negative bacilli which are non-sporing obligate anaerobes (Wilson and Miles, 1964). Their natural habitat is the large intestine, mouth, and vagina.

Bacteroides septicaemia is becoming increasingly well recognized as a complication of gastrointestinal and gynaecological surgery. Patients with underlying malignancy or prior antibiotic therapy are predisposed to this condition (Bodner, Koenig and Goodman, 1970). In a survey by Okubadejo, Green and Payne (1973), twenty-nine strains of B. fragilis were tested against co-trimoxazole—all were found to be sensitive. One of the disadvantages of co-trimoxazole has been the absence of a parenteral form for use in seriously ill patients in whom oral administration is not practicable. We report the use of intravenous trimethoprim/sulphadimidine in two cases of septicaemia due to Bacteroides infection.

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Case reports

Case 1

A 74-year-old man was admitted with a history of acute abdominal pain and signs suggestive of intestinal obstruction. At laparotomy, a moderately well differentiated annular carcinoma of the splenic flexure and an empyema of the gall bladder were found. Left hemicolectomy, caecostomy and a difficult cholecystectomy were performed. The patient's progress was uneventful until the seventh day post-operatively, when he became clinically shocked, with tachycardia, tachypnoea and oliguria. Blood cultures were taken and treatment with intravenous chloramphenicol commenced. Twenty-four hours later the patient's condition had further deteriorated. Treatment was changed to trimethoprim 100 mg and sulphadimidine 500 mg i.v. 8-hourly and i.v. cloxacillin 1·0 g 4-hourly. On this regime the patient steadily recovered; all subsequent blood cultures were negative. The first blood culture grew a Staphylococcus aureus of doubtful significance which on
further incubation yielded a profuse growth of *Bacteroides* sp., resistant to penicillin, cloxacinil, partially resistant to ampicillin, and sensitive to co-trimoxazole, cephalothin and clindamycin.

**Case 2**

A 53-year-old man was admitted with a severe haematemesis and melaena. He underwent a truncal vagotomy and pyloroplasty with undersewing of a bleeding duodenal ulcer. Ten days postoperatively the patient developed a tachycardia and evidence of a further haemorrhage. Laparotomy revealed an abscess surrounding the pyloroplasty site; a Polya gastrectomy was performed. Postoperatively the patient was noted to be pyrexial; the pulse fluctuated between 120 and 140/min, the systolic blood pressure had fallen from 140 to 100 mmHg; there was evidence of poor peripheral perfusion. It was thought that the patient had a Gram-negative septicemia. Blood cultures were taken and treatment with trimethoprim 100 mg and sulphadimidine 500 mg intravenously, together with cephalothin 1·0 g intravenously 4-hourly was commenced. The blood cultures grew *Bacteroides fragilis* after 4 days' incubation, sensitive to co-trimoxazole and lincomycin and resistant to cephalothin. The patient's condition had improved but in view of the blood culture report, the cephalothin was changed to lincomycin 600 mg i.v. 6-hourly, together with trimethoprim and sulphadimidine as previously prescribed. Blood cultures taken 4 days after the commencement of antibiotic therapy were negative after 7 and 14 days' incubation. Intravenous lincomycin, sulphadimidine and trimethoprim was continued for 8 days, when treatment was changed to oral septrin.

**Discussion**

Bodner et al. (1970) reported on thirty-nine patients with bacteraemia due to *Bacteroides*. The mortality in this series was 38%, advanced age, serious underlying disease, the presence of shock and delay in instituting proper therapy were associated with a poor outcome. Bacteraemic shock developed in eight of the fifteen fatal cases in contrast to only two of the twenty-five survivors.

In severe *Bacteroides* infection, the commonest species isolated is *B. fragilis* which is usually resistant to penicillin but nearly always sensitive to erythromycin, lincomycin, chloramphenicol and clindamycin (Tracy et al., 1972; Lancet, 1973).

*Bacteroides* septicemia may be associated with other organisms in the blood stream, especially the anaerobic *Streptococcus*. Isolation of the *Bacteroides* sp. in anaerobic blood cultures may take several days, and therefore appropriate antibiotic therapy may be delayed. On occasions, *Bacteroides* may be isolated from the blood and the patient recover spontaneously without appropriate antibiotic therapy (Bodner et al., 1970). Clinical suspicion of a serious *Bacteroides* infection is most important since appropriate antibiotic therapy may have to be instituted before isolation of the organism. Evidence of a severe systemic infection following manipulation of the gastro-intestinal tract or female genital tract should make one suspect *Bacteroides* septicemia. Frequently the exudate from the infective source is foul smelling and contains Gram-negative bacilli which fail to grow aerobically.

Under such circumstances it is wise, until the bacteriology is available, to give an antibiotic which will cover the Gram-negative series, including the *Bacteroides*, or to add intravenous lincomycin to the antibiotic regime. The *Bacteroides* sp. and other organisms of the Gram-negative series are generally sensitive to co-trimoxazole (Okubadejo, Green and Payne, 1973).

The above cases suggest that a combination of i.v. trimethoprim and sulphadimidine may be a useful alternative to i.v. lincomycin in patients where *Bacteroides* septicemia is suspected. Intravenous trimethoprim and sulphadimidine have not been critically evaluated in the management of Gram-negative septicemia; it is therefore advisable to combine these drugs with another antibiotic of proved efficacy against the majority of Gram-negative organisms.

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