main artery is accompanied by abnormalities in the small renal vessels. Because operation entails a high risk for the allograft, one should bear in mind that sclerosis may regress spontaneously.


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Prognostic value of the oculovestibular reflex in fulminant hepatic failure

The mortality rate of patients with fulminant hepatic failure when treated by conservative measures alone is at least 80%. Nevertheless, prediction of the outcome in the individual case is difficult, and, although recent reports have indicated serum α-fetoprotein, 1 C4 cholic acid kinetics, 2 and the galactosamine elimination test 3 may be useful, there is some overlap. Serial electroencephalogram monitoring is still probably the most reliable method available but requires specialised personnel and equipment. In the present study changes in the oculovestibular reflex, a simple and easily performed bedside test, were shown to be of equal value.

Patients, methods, and results

Thirty patients with fulminant hepatic failure who signed a grade IV encephalopathy on admission were investigated (table). In addition to standard supportive treatment, three of the patients were treated by repeated daily periods of charcoal haemoperfusion and 17 by polyacrylonitrile haemodialysis. Monitoring of motor responses to compression of distal interphalangeal joints was performed as a means of assessing pain responsiveness. Papillary light responses and oculovestibular reflexes (OVR) were performed to assess brain stem function. The oculo-vestibular reflex was determined by rapid to and fro movements of the head in the vertical and horizontal planes, and the oculovestibular reflex by irrigating the external auditory canal and tympanum with iced water (20 ml).

The oculovestibular reflex was present on admission in 26 patients, and remained throughout the duration of coma in 10. Nine of the 10 patients recovered consciousness, the other dying from a massive gastrointestinal haemorrhage. Although the OVR was not lost in any of the nine patients, transient losses of motor responses to pain (three patients), pupillary light responses (one), and oculovestibular responses (two) were observed.

Comparison of clinical and laboratory data between the two groups (mean ± SD)

<table>
<thead>
<tr>
<th>Duration of symptoms prior to admission (days)</th>
<th>Recovery of consciousness</th>
<th>Non-recovery of consciousness</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1 ± 10.9</td>
<td>7.7 ± 7.8</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Duration of grade IV encephalopathy (days)</td>
<td>1.8 ± 0.6</td>
<td>1.4 ± 0.5</td>
<td>NS</td>
</tr>
<tr>
<td>Prothrombin time (s prolonged)</td>
<td>98 ± 36</td>
<td>72 ± 23</td>
<td>NS</td>
</tr>
<tr>
<td>Bilirubin (μmol/l)</td>
<td>32.5 ± 9.2</td>
<td>34.1 ± 5.1</td>
<td>NS</td>
</tr>
<tr>
<td>Alkaline phosphatase (IU/l)</td>
<td>230 ± 161</td>
<td>171 ± 72</td>
<td>NS</td>
</tr>
<tr>
<td>Serum aspartate transaminase (IU/l)</td>
<td>146 ± 66</td>
<td>176 ± 55</td>
<td>NS</td>
</tr>
<tr>
<td>NS = Not significant.</td>
<td></td>
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</tr>
</tbody>
</table>

Conversion: 1 to traditional units—Bilirubin 1 μmol/l ≈ 0.058 mg/100 ml.


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Persistent diarrhoea and hypoalbuminaemia associated with cytomegalovirus enteritis

Symptomatic cytomegalovirus (CMV) infection restricted to the gastrointestinal tract of adults is uncommon. 1 It may occur as a primary event or, more usually, as secondary to either a local 2 or a debilitating systemic disease. 3 This report describes the occurrence of severe intractable diarrhoea and hypoalbuminaemia with CMV enteritis in a patient with no evidence of pre-existing local or systemic disease.

Case report

A 68-year-old woman presented, four months before death, with a one-year history of dysphagia, mild anaemia, weight loss, and more recent onset of diarrhoea. Her health before this had been good. The results of barium swallow, meal, and enema; oesophagogastroscopy; and sigmoidoscopy were normal. Her haemoglobin at this time was also normal. Two months later she complained of increasing diarrhoea, weight loss, and mouth ulcers and was admitted for further investigation. She was pale and thin with angular...
stomatitis and aphthous ulceration of the buccal mucosa. The haemoglobin concentration had now fallen to 9.7 g/dl; white cell count 4.0 x 10^9/l (4000/mm^3); erythrocyte sedimentation rate 125 mm in the first hour. Concentrations of serum albumin were 3.7 g/l, IgG 17 g/l, IgM 0.9 g/l, serum B, 455 ng/l; serum folate 1.4 µg/l; red cell folate 57 µg/l. Autoantibodies were not detected and the results of thyroid function tests were normal. The urine contained only a trace of albumin. Fecal fat excretion was normal, although her dietary fat intake was low at that time. Histologically, a jejunal biopsy specimen showed a trivial degree of villous shortening, consistent with folate deficiency, and a rectal biopsy specimen was normal.

In view of the continued deterioration characterised by persistent diarrhoea and hypoalbuminaemia, empirical treatment with corticosteroids was started two weeks before death. This produced an improvement in her bowel symptoms. Nevertheless, deep leg vein thrombosis supervened, which was treated with heparin, followed by a chest infection that failed to respond to antibiotics. At necropsy bronchopneumonia and small peripheral pulmonary emboli were found. Sections of jejunum showed mucosal ulceration affecting roughly half of the bowel circumference. The ulcers were lined by granulation tissue with an inflammatory infiltrate rich in lymphocytes and plasma cells. Lying apparently within the capillaries of the granulation tissue were many large cells with basophilic cytoplasm and prominent eosinophilic intranuclear inclusions. Such cells had the typical morphological features of CMV infection (figure). No histological evidence of CMV infection was found in any other organ.

Discussion

Evidence of CMV infection in the gut may be found in either the epithelial cell compartment or, in the present case, the mucosal and submucosal capillaries and venules. These vascular lesions are associated with mucosal ulceration, presumably owing to local ischaemia. The lesions, seen endothelial or vascular, B 15 g/l; IgA 7.4 g/l and IgM 0.9 g/l; serum B, 455 ng/l; serum folate 1.4 µg/l; red cell folate 57 µg/l. Autoantibodies were not detected and the results of thyroid function tests were normal. The urine contained only a trace of albumin. Fecal fat excretion was normal, although her dietary fat intake was low at that time. Histologically, a jejunal biopsy specimen showed a trivial degree of villous shortening, consistent with folate deficiency, and a rectal biopsy specimen was normal.

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Section of jejunum showing the edge of a mucosal ulcer. The intact mucosa (right) exhibits autolytic changes. Within the capillaries and venules of the granulation tissue in the ulcer are cells showing the characteristic cytomegaly and intranuclear inclusions of CMV infection (inset). (Haematoxylin and eosin. x 31 (inset x 772)).

Cryptococcosis: survival attributed to combination antifungal treatment

Cryptococcal meningitis is rare in the UK and occurs mainly as an opportunistic infection. Before the introduction of amphotericin B it was invariably fatal. Flucytosine is also effective in cryptoccocal infections. Neither agent used alone is ideal, however, because of non-response, relapse, and toxicity. Medoff et al reported in-vitro synergism of amphotericin B and flucytosine against three isolates of Cryptococcus neoformans. The results of treatment in a series of 20 patients were subsequently reported. We describe a patient who developed cryptococcosis while receiving chemotherapy for Hodgkin's disease. He would probably not have survived without combination antifungal treatment.

Case report

A 25-year-old plumber was diagnosed in June 1975 as having stage IA lymphocyte-predominant Hodgkin's disease. Staging laparotomy was not performed because he was grossly overweight. He was treated with irradiation directed to the cervical, axillary, and mediastinal lymph nodes, the "mantle" technique being used. By October his health had deteriorated. He had lost weight and developed obstructive jaundice. A lymphogram showed abnormal para-aortic nodes. Chemotherapy was started with the MOPP regimen (mustine, vincristine, procarbazine, and prednisolone). Response was good but half-way through the second cycle he developed acute streptococcal mononucleosis and septicaemia. This responded to benzylpenicillin. One week later he complained of headache and photophobia of sudden onset. Examination showed signs of meningitis. Lumbar puncture yielded purulent cerebrospinal fluid (CSF) under high pressure. Cell count was 145 x 10^3 (145/mm^3), protein 1.53 g/l, and glucose 0.83 mmol/l (15 mg/100 ml). CSF smears contained yeasts. C neoformans was cultured from CSF and blood. Latex test result for cryptococcal antigen was positive to a titre of 1/100 in CSF and blood. Cryptococcal antibody was not detected.

Flucytosine and amphotericin B were started. Flucytosine was given by mouth, 16 g daily for four weeks, reducing to 12 g daily for nine weeks, and amphotericin B by intravenous infusion over six hours. The initial daily dose of amphotericin B (10 mg) was increased by 5 mg a day to a total of 45 mg daily, but at this dose severe rigors occurred. The same dose together with 45 mg hydrocortisone was accordingly given on alternate days and was well tolerated. Over 13 weeks he received a total of 2130 mg amphotericin. The drug was given intravenally in doses of 0.25 mg and 0.5 mg during the first week, after which CSF smears and cultures remained negative. Three further cycles of chemotherapy were given according to schedule but with prednisolone omitted.

Side effects of treatment were few. Hypokalaemia developed after two weeks but was adequately controlled with potassium supplements or amiloride 10 mg daily. Renal function was otherwise normal. The haemoglobin concentration tended to fall gradually, requiring blood transfusion on two occasions. Serum alkaline phosphatase and γ-glutamyltransferase concentrations rose three weeks after starting treatment but returned to normal after normal treatment was stopped. Results of further examinations of CSF during and after treatment were normal. The patient remained well without any treatment for 18 months. Examination of CSF after 14 months showed a lymphocyte count of 26 x 10^3/l and a protein concentration of 0.81 g/l, but a search failed to disclose any crypto-