VITAMIN-K DEFICIENCY IN THE NEWBORN

Sir,—We agree with the last lines of Professor Edson’s letter (July 23, p. 187): “Protamine should not be used in a newborn unless it is clear that the patient is heparinised and has an actual or potential bleeding complication because of this.” Precisely because our experiments did show a heparin-like inhibitor in the normal newborn (besides the well-known low level of coagulation factor) we suggested that protamine administration might be considered in hemorrhagic diseases of the newborn, but only after confirmation of the presence of this inhibitor in each individual case.

Because the changes that are found in vitamin-K deficiency are not found in the plasma of the newborn or the infant of 1–5 days of age there is no reason to assume that administration of vitamin-K would be beneficial. Indeed since 1942 it has been repeatedly found that vitamin-K administration does not lower the frequency of bleeding in the newborn.1

We can confirm Mrs Cheryl D. Swinehart’s findings (cited by Edson) that the inhibitor will not be unequivocally demonstrated in vitamin-K prophylaxis but does not contain or mycin blood. The rest of Edson’s letter adequately sums up current beliefs on vitamin-K prophylaxis but does not contain clinical or experimental data that invalidate our findings. These findings strongly suggest that current beliefs are wrong, and that is why we published them.2

Developments in laboratory analysis of coagulation status enable us to distinguish between deficiencies in factor II, VII, IX, and X caused by vitamin-K deficiency and those caused by a lack of synthesis per se of these plasma proteins. This distinction has not been made in the work cited by Professor Aballi (Sept. 10, p. 559), so some educated guesswork must lie behind his interpretation. Combining his data, work he cites, and our results we find that we agree both that the normal newborn does not show a vitamin-K deficiency and that no signs of vitamin-K deficiency persist after 72–96 h.

We tested for laboratory signs of vitamin-K deficiency in fifteen babies at birth and 80–90 h after birth and did not find abnormal prothrombin. We found a mean prothrombin level of 49% at birth and 39% at about 85 h. The difference of 10% cannot be due to vitamin-K deficiency because in that case a mean of 10% abnormal prothrombin would have to be present. Transient vitamin-K deficiency is not excluded by our measurements, but we did not find it in a few infants studied at 1 or 2 days of age. It is hard to see that a transient vita-


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ABSENCE OF PAPOVAVIRUS T ANTIBODY IN PATIENTS WITH MALIGNANCIES

Sir,—JC virus and BK virus, the two prototype viruses of the human polyoma group, are ubiquitous. They infect large numbers of people, and in most cases seroconversion takes place in childhood. The ability of these viruses to transform cells in vitro and to produce tumours in laboratory animals has led to suggestions that they may play a role in the aetiology of human neoplasms.

The presence of one of these two viruses has been demonstrated in association with renal tumours, brain tumours, and epithelial tumours of the bladder. A close relationship is observed between one or both of these viruses and the occurrence of subclinical renal papillary tumours. The possibility that these viruses may have a role in the aetiology of human neoplasms is of great interest and importance.

The first step in the study of the possible significance of these viruses in human neoplasms is to test sera from patients with malignancies for the presence of antibodies to the T-antigen of these viruses. We have therefore tested sera from patients with a variety of malignancies for the presence of antibodies to the T-antigen of the BK virus.

The sera were tested by indirect fluorescent antibody staining of infected and non-infected HeLa cells. A panel of human sera was used as controls.

The results of these tests are shown in the table. It can be seen that no patients had detectable antibodies to BK virus T-antigen.

We believe that further studies of this nature are necessary before any conclusions can be drawn regarding the possible role of these viruses in human neoplasms.

We have not been able to detect antibodies to the T-antigen of the BK virus in the sera of patients with malignancies.

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min-K deficiency of which no traces persist after 85 h would result in a serious drop of coagulation factors because: (a) vitamin-K deficiency develops slowly, so inhibition of coagulation factor synthesis will set in gradually, and (b) coagulation factor activity does not immediately respond to an inhibitor of coagulation factor synthesis, but lags behind because the factors already circulating take some time to disappear.

In the rat, which has a high turn-over rate of coagulation factors it still takes 7 days on a vitamin-K-deficient diet before a bleeding tendency develops.4 In normal man complete inhibition that leaves no trace of clotting-factor synthesis after 85 h can cause a fall in prothrombin of more than 20%.6

We suggest that the blood of a newborn with a bleeding tendency be analysed for vitamin-K deficiency (staphylococcal-determined factor it much greater than one-stage estimation), and heparin-like inhibitor (protease-sulphate-induced reduction of functional antithrombin 3), and that therapeutic measures are taken accordingly.

We would be happy to analyse any samples that suggest presence of vitamin-K deficiency in the newborn.

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Antibodies to Viral T Antigens in Patients with Tumours or Benign Conditions and Controls

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>No. of Sera</th>
<th>+ for T at 1/2 dilution</th>
<th>+. for T by C.F.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain tumour</td>
<td>11</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Benign brain lesions</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Urinary bladder carcinomas</td>
<td>20</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Benign bladder disease</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cervical carcinomas</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Breast carcinoma</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Benign breast disease</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lymphomas</td>
<td>10</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Healthy controls</td>
<td>25</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>113</td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>

Animals bearing tumours induced by BK or JC virus have antibodies to a viral antigen present in the nucleus of the tumour cell. These "T" antigens and antibodies can be detected by immunofluorescence and by complement fixation; BK and JC virus/T antigens high degree of cross-reactivity with each other and with the T antigens of SV40 virus.

If any human tumours are caused by BK or JC virus, some patients should have antibody to the T antigens of these viruses in their sera. We have tested a panel of human sera by
