Now that its field of usefulness has been defined it is proposed to combine it with surgery and radiotherapy, and to discover if its effect is greater under conditions of slowed circulation and hypothermia.

SUMMARY

Thirty patients with inoperable cerebral tumours have been treated by intracarotid injection of ethoglucid (triethyleneglycol diglycidyl ether, "epodyl"). The marrow-depressant effects were less than in other cytotoxic drugs and there were no other important toxic symptoms. Thirteen of the 30 patients had objectively recordable remissions. This drug cannot effect

complete tumour destruction, but it can arrest growth in some cases for varying times. It is more effective in the less malignant cerebral gliomas.

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Medical Memoranda

Ureteric Obstruction by Clot During Anticoagulant Treatment

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The following case presents an unusual complication of anti-coagulant therapy—obstruction of both ureters by clots forming after large doses of vitamin K were given to a patient bleeding from over-dosage with dicoumarol.

CASE REPORT

A woman aged 58 had both breasts removed by radical mastectomy for carcinoma, the right 18 years previously and the left on 25 May 1961. After the treatment programme had been explained to her and full oral and written instructions given she was admitted to a panel of patients having trial of long-term anticoagulant treatment as a possible means of preventing metastases, in view of evidence for the importance of fibrin in growth of tumours and the suppressive effect of coumarin therapy on them (Lacour, Oberling, and Guérin, 1957; Wood, Yardley, and Holyoke, 1957; O'Meara and Jackson, 1958; Wood, Holyoke, and Yardley, 1961).

Treatment began on 10 October 1962 with 25 mg. dicoumarol daily, which was increased gradually to 112 mg. at the end of six weeks' therapy. At this stage Quick test was 27 seconds, factor II (Owren and Aas) 25%, factor VII (Adamis, Sise, and Kimball) 6%, and factor X (Sise, Lavelle, and Becker) 25%.

She believes that on 6 December 1962 she may have taken her daily dose twice. On 7 December, three days before her next blood test was due, she developed pain in her loins and on 8 December had haematuria and bleeding from the gums but continued to take her dicoumarol. On 9 December she called her doctor, but took her daily dose as usual first. During this time she had a slight cold for which she took two tablets containing acetylsalicylic acid ("anadin").

On 10 December her doctor admitted her to Galway Regional Hospital after first giving her vitamin K intravenously. On admission at 7.45 p.m. she showed gross haematuria, haemoptysis, and bleeding from the gums. She was given 20 mg. vitamin K water-soluble analogue at 12 midnight. Clinically she was anaemic, with a blood-pressure of 130/80 and pulse rate 80. There was a swelling over her left mandible and a few scattered basal rales in her chest.

Haematuria continued on 11 December and an in-dwelling catheter was introduced. Urine output was reduced to 250 ml. for the 24 hours. Back pain continued and she had a rigor at 6.30 p.m. Temperature was 102° F. (38.9° C.) and pulse rate rose to 120 per minute. Blood pressure remained about 120/70. Haemoglobin was 47%. At 5 p.m. and 11 p.m. 30 mg. vitamin K were given intravenously. Quick test was 68 seconds, factor II 5%, factor VII 46%, and factor X 2%.

On 12 December her urine output was 100 ml. and was still bloody. One pint of blood was transfused, starting at 3.30 p.m. Factor II was 80%, factor VII 100%, and factor X 90%. Further vitamin K was given.

On 13 December urine output was 50 ml., haematuria was present, blood urea was 164 mg./100 ml., and other electrolytes were normal. At this stage obstruction of the ureters by a clot of blood was suspected. At 8 p.m. cystoscopy was carried out under general anaesthesia. Old clots were seen protruding from both ureteric orifices. A No. 6 ureteric catheter was passed into each ureter. The right catheter excreted clear urine profusely on reaching the renal pelvis. The left catheter excreted blood-stained urine less profusely on reaching half-way between the bladder and renal pelvis. Dicoumarol 35.5 mg. daily was started.

On 14 December both catheters drained well, the left not so profusely and with blood-stained urine. Factor II was 90%, factor VII 70%, and factor X over 100%. The right catheter was removed that evening. On 15 December the left catheter was removed. Progress after this was uneventful except for slight staining of sputum on 18 December associated with some atelectasis of the left lower lobe.

The patient was given penicillin G with streptomycin ("crystamycin") initially, but this was stopped when urinary suppression became obvious and methenamine mandelate ("mandelamine") was substituted. Urine remained sterile throughout. On 24 December the patient was discharged to the anticoagulant panel.

COMMENT

Judged on clinical grounds, urinary obstruction began before 11 December at a time when factor II was 5% or less. Suppression was complete on 12 December when factor II reached 80%. The clots were broken up by the catheters. It is clear, however, that the right clot extended from the renal pelvis to the bladder and the left clot from half-way down the ureter to the bladder. The blood transfusion scarcely played a part in the clotting, since it was started 24 hours after oliguria became severe.

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