hyperaldosteronism caused by a renin dependent hypertensive state, appropriate treatment would be very different, with the need to consider spironolactone or triamterine (as might have been helpful in our patient), before the diagnosis is established.

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Correspondence to Dr J W Honour, Cobbold Laboratories, Thorn Institute of Clinical Science, The Middlesex Hospital Medical School, London W1N 8AA.

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Early treatment of familial hypophosphataemic rickets

M ROZA, M A MIGUEL, M GALBE, L MEJIDO, AND C MENCIA

Department of Paediatrics, Hospital General de Asturias, Oviedo, Spain

SUMMARY A 2½ year old girl in whom familial hypophosphataemic rickets was diagnosed at age 2 months, has been treated since then with oral 1α,25-dihydroxycholecalciferol and phosphate. She has not, so far, developed osseous lesions.

Recent research into the metabolism of vitamin D has led to knowledge of its active forms and treatment applications. Despite its successful therapeutic effects in hypophosphataemic rickets (HR), opening a new field in the physiopathological research into this disease, not all the mechanisms are known. We present a patient in whom the early treatment of familial HR with 1α,25-dihydroxycholecalciferol (1α,25(OH)₂D₃) and phosphate (Joulie's solution) prevented the onset of bone lesions.

Case report

A girl, aged 2½ years at the time of this report, had been observed since birth. Her mother was known to have a sporadic form of HR with severe bone abnormalities (osteomalacia) and dwarfism, and had been treated during infancy with combined phosphates and vitamin D₃ without any improvement. The pregnancy was normal, and a caesarean section was performed for maternal indications.

Our patient's birthweight was 3.3 kg and her length was 52 cm.

A physical examination at age 2 months showed her to be normal—weight and height at the 25th centile. Laboratory investigations at that time found the following: hypophosphataemia—phosphate 1.13 mmol/l (3.5 mg/dl), normal range for our laboratory 1.29–2.09 mmol/l; normal serum calcium—2.3 mmol/l (9.2 mg/dl), normal range 2.1–2.6 mmol/l; raised alkaline phosphatase—56 KA units, normal range 7.5–32.5 KA units; hypocalciuria—0.0365 mmol/kg/24 hours (1.46 mg/kg/24 hours); hyperphosphaturia—45.54 mmol/1.73m²/24 hours (1.41 mg/1.73m²/24 hours); and a reduction in renal tubular reabsorption of phosphate—60%.

Renal function parameters were normal: glomerular filtration rate (GFR) estimated by creatinine clearance was 70 ml/1.73 m²/minute, with GFR of sodium, calcium, and potassium 0.09 ml/100 ml, 0.17 ml/100 ml, and 6.98 ml/100 ml of filtrate. Aminoaciduria was normal, urine density was 1028; and pH 5. Plasma bicarbonate was 23.8 (mEq) mmol/l and plasma pH was 7.38. After intravenous loading of phosphate there was an important reduction in the maximal tubular excretory capacity of phosphate (GFR 3.6 mg (1.2 mmol)/100 ml filtrate). Knee and wrist radiographs were normal.

Figure Treatment (a) and laboratory investigations (b) over a period of 28 months in a child with familial hypophosphataemic rickets.

Conversion: traditional units to SI—calcium 1 mg/dl $\approx$ 0.25 mmol/l; phosphate 1 mg/dl $\approx$ 0.323 mmol/l.

Treatment with oral phosphate was started at a dosage of 600 mg/day (in 6 divided doses) and $1,25(\text{OH})_2\text{D}_3$ at a dosage of 0.25 $\mu\text{g/day}$. These doses were increased until the alkaline phosphatase value was normal—at 2.2 g/day phosphate and 1.25 $\mu\text{g/day}$ $1,25(\text{OH})_2\text{D}_3$. Plasma phosphate was always above 1.066 mmol/l (3 $\mu\text{g/dl}$) and no hypercalcaemic episodes were detected (Figure). At the age of 2½ years bone radiographs remained normal. Weight and height were at the 75th and 90th centiles respectively, and the maximal tubular excretory capacity of phosphate had dropped to GFR 1.6 mg (0.53 mmol)/100 ml filtrate.

Discussion

With the introduction of the active forms of vitamin D in the treatment of familial HR the outlook for these patients has improved substantially.^{1,2} The growth rate is accelerated, bone mineralisation becomes normal, and a better control of plasma parathyroid hormone is achieved as the secondary hyperparathyroidism frequently observed when other forms of vitamin D and phosphate are used does not

occur. The treatment with phosphate alone has in some cases been successful, but with this regime hyperparathyroidism always develops.³ According to the published reports, $1,25(\text{OH})_2\text{D}_3$ and phosphate combined is the most useful treatment for familial HR. Despite this, however, histologic normalisation of bone is not possible when rickets is already established.³⁻⁵

Moncrieff reported four children with familial HR studied since birth. He delayed treatment with $1,25(\text{OH})_2\text{D}_3$ until bone lesions appeared but concluded that treatment should be started before radiographic bone lesions became apparent and that a raised alkaline phosphatase value and hypophosphataemia should be used as indicators.⁶

In our patient the treatment recommended by Moncrieff has prevented bone lesions. When we first saw this girl in 1979 we were concerned about the precise time to begin treatment and considered that the raised alkaline phosphatase value and hypophosphataemia were parameters valid enough to start active treatment for rickets. There have been no important problems associated with treatment and although we have no bone histology, we believe

that in the long term and on the basis of the radiographic evidence our patient's bone structure may be normal.

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Correspondence to Dr M Roza, C/ Cervantes No 25, 40A, Oviedo, Spain.

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Haemangioma with thrombocytopenia (Kasabach-Merritt syndrome)

T J DAVID, D I K EVANS, AND R F STEVENS

Department of Child Health, University of Manchester and Department of Haematology, Booth Hall Children's Hospital, Manchester

SUMMARY We describe two patients with haemangioma with thrombocytopenia (Kasabach-Merritt syndrome). Both were treated with corticosteroids without notable improvement. The first patient responded satisfactorily to radiotherapy, whereas the second showed a slow spontaneous resolution.

Kasabach and Merritt¹ first described the syndrome of thrombocytopenia with haemangioma. Approximately 100 cases have been reported subsequently. The haemangioma enlarges, usually in infancy, and at the same time there is a fall in the platelet count, together with hypofibrinogenaemia and a consumption coagulopathy. Radioisotope studies have shown an increased uptake within the haemangioma of platelets or fibrinogen, or of both.² Surgery is not always possible. Radiotherapy, corticosteroids, anticoagulants, and antifibrinolytics have all been used, but none is clearly superior. We report two girls with haemangioma and thrombocytopenia in whom the use of corticosteroids was of little or no benefit.

Case reports

Case 1. The haemangioma presented at the age of 5½ weeks, and progressively enlarged. On admission at 7 weeks there was an extensive firm swelling below

the chin extending into the neck on both sides but more on the right where it extended to the angle of the jaw (Figure). The haemangioma was also visible on the floor of the mouth below the tongue. The liver was palpable 3 cm below the costal margin. Investigations showed haemoglobin 8.5 g/dl, white cells $7.9 \times 10^9/l$, and platelets $20 \times 10^9/l$. The blood film showed microcytosis, anisocytosis, burr cells, and a normal differential. The prothrombin time was 12.5 seconds (control 11.5 seconds), activated partial thromboplastin time 45 seconds (control 43 seconds), and fibrin degradation products between 10 and 40 $\mu g/ml$ (normal less than 10 $\mu g/ml$).

Treatment with epsilon aminocaproic acid and vitamin K was given for three weeks, followed by one week of prednisolone 4 mg/kg/day, but the haemangioma continued to enlarge rapidly and the platelet count fell to $9 \times 10^9/l$. Surgical removal was impossible. Diminution in the size of the lesion occurred after a single dose of radiation (400 rads), but this was followed by enlargement of the lesion and haematological relapse. A second dose of 400 rads was followed by slow and complete regression of the lesion, so that the lesion had entirely disappeared by 14 months of age.

Case 2. A red swelling on the medial side of the left knee, presented at the age of 3 months, diagnosed initially as cellulitis and treated with penicillin.