

intravenous nutrition solutions have been well tolerated when the osmolality is less than 983 mmol/l but the daily risk of extravasation is 0.54 for "butterfly" needles and of phlebitis 0.25 for short plastic catheters.³ The daily risk of phlebitis with our fine silicone catheters was 0.016, with a median period of function of nine days. One patient with pancreatic abscess received 60 days of complete intravenous nutrition through a single catheter. There were no bacteraemic episodes related to the catheter, while the expected rate with central intravenous nutrition is 4%.⁴

Intravenous nutrition solutions providing 70% of non-protein calories as lipid are efficacious,⁵ but their use has been limited because they are unsupported by an adequate delivery system. Their use with a fine silicone catheter may avoid the need for central vein

cannulation in 89% of inpatients requiring intravenous nutrition.

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Pseudohyperphosphataemia in multiple myeloma

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Abnormalities in serum inorganic phosphate concentrations are uncommon in multiple myeloma in the absence of renal impairment or hypoparathyroidism. We report a case of spurious hyperphosphataemia in a patient with no other abnormality of calcium metabolism or renal function.

Case report

A 40 year old woman presented with a two month history of lethargy and dyspnoea on mild exertion after a viral infection had been diagnosed. She had appreciable anaemia (haemoglobin concentration 79 g/l) and an erythrocyte sedimentation rate >140 mm in the first hour. Subsequent investigation showed an IgG λ myeloma. The serum concentration of inorganic phosphate, measured with a Hitachi 737 analyser, was 2.36 mmol/l (normal range 0.8-1.4 mmol/l). There were no clinical manifestations of hyperphosphataemia. Serum calcium concentration (total 2.22 mmol/l; 2.31 mmol/l when adjusted for serum albumin concentration), immunoreactive parathyroid hormone concentration (62 pmol/l measured by mid-molecule radioimmunoassay), and renal function (urea concentration 4.4 mmol/l; creatinine concentration 84 μ mol/l; creatinine clearance 95 ml/min) were normal.

She was enrolled into the sixth Medical Research Council trial, in which she received doxorubicin, carmustine, cyclophosphamide, melphalan, and prednisolone and a placebo of clodronate. The chemotherapy induced a good response, and her serum IgG concentration fell from 72 g/l to 33 g/l within one month. The serum inorganic phosphate concentration decreased from 2.08 to 1.64 mmol/l. Because of persistent bone marrow suppression all drugs apart from clodronate were stopped after five months and weekly cyclophosphamide was substituted; an increase in serum globulin concentration at this time was associated with an increase in serum phosphate concentration to 2.56 mmol/l. A close correlation was observed between serum phosphate concentration and serum globulin ($r=0.90$) and serum total protein concentrations ($r=0.97$) (figure).

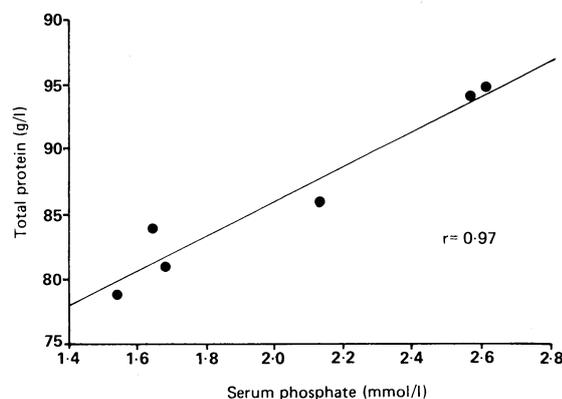
Phosphate concentrations in six serum samples from the patient were subsequently assayed by three different techniques. Values obtained with an RA1000 analyser showed persistent hyperphosphataemia (2.49 - 2.73 mmol/l; normal range for the technique 0.7 -

1.5 mmol/l); those obtained with a Technicon SMAC analyser (1.46 - 1.53 mmol/l) were at the upper end of the normal range (0.7 - 1.5 mmol/l); and those obtained by atomic emission spectroscopy (1.92 - 2.01 mmol/l) did not differ from those found in three normo-phosphataemic patients with myeloma and three normal subjects (range 1.62 - 2.40 mmol/l).

Comment

Chronic hyperphosphataemia is rare and usually secondary to pronounced impairment of renal function. Other causes include hypoparathyroidism and pseudohypoparathyroidism and administration of drugs such as the diphosphonate etidronate. We were surprised, therefore, to observe appreciable hyperphosphataemia with normal creatinine clearance and normal serum concentrations of calcium and immunoreactive parathyroid hormone. Whereas etidronate increases serum phosphate concentrations, the effects of clodronate are small and transient.¹ In addition, hyperphosphataemia in this patient was present before treatment, so that clodronate is unlikely to have contributed to the high serum phosphate concentration.

The three methods for measuring inorganic phosphate in serum in our laboratories use chromogenic assays,² but with the Technicon SMAC analyser many serum proteins and other macromolecules are removed before measurement. The lower serum concentrations of inorganic phosphate found with this method suggest either that the excess phosphate was bound to protein, possibly to an abnormal paraprotein, or that a paraprotein was interfering with the assay. The close correlation between serum phosphate and serum protein concentrations supports either possibility. Atomic emission spectroscopy measures the total inorganic and organic phosphate content of serum.



Correlation between apparent inorganic phosphate concentration in serum that had not been dialysed and serum total protein concentration in patient with multiple myeloma

The similar serum phosphate concentrations found in our patient and in the control subjects by this method suggest that little if any excess phosphate was present; we confirmed this with binding studies using phosphorus-32 (data not shown).

These findings suggest that a paraprotein interfered in an undetermined way with the chromogenic assay and the apparent high serum phosphate concentration can be described as pseudohyperphosphataemia. As many patients with myeloma have concurrent renal impairment³ cautious interpretation of apparent hyperphosphataemia is required before specific treatment is given.

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Psychiatric discharge summaries: differing requirements of psychiatrists and general practitioners

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During our medical training we became aware of a discrepancy between the type of discharge summary required for hospital notes and that preferred by general practitioners. We used questionnaires to investigate the differing requirements of general practitioners and psychiatrists for such discharge summaries.

Method and results

We based the study at Highcroft Hospital, Birmingham, which serves a population of 466 000 and is staffed by 10 consultant and 13 junior psychiatrists. We sent a question sheet, three sample discharge summaries (A, B, and C), and an explanatory letter to all 234 general practitioners who refer patients to the hospital. Each summary described the same case (depression in an elderly woman) and began with phrases under the headings "diagnosis," "discharge medication," and "follow up." Summary A (total length half a side of a page of A4 paper; typescript) ended with a few words under the additional heading "prognosis." Summary B (one side of A4 paper) ended with pertinent information without headings. Summary C (two and a quarter sides of A4 paper) ended with concise, detailed information under 11 headings conforming to the Institute of Psychiatry's guidelines for case summaries.¹ The question sheet asked which sample summary the general practitioner would prefer to receive; how the preferred summary could be improved; and for any further comments about psychiatric summaries. Replies were collected personally.

We also sent a question sheet, the three sample summaries, and an explanatory letter to the 23 psychiatrists at the hospital. The question sheet asked which sample summary the psychiatrists would prefer to have filed as a record in the case notes; how the preferred summary could be improved; and for any further comments about psychiatric summaries. Replies were collected personally.

Numbers of general practitioners and psychiatrists who preferred each of three forms of discharge summary (see text for details of summaries)

Specimen summary	General practitioners (n=208)	Psychiatrists (n=23)
A	17	0
B	138	6
C	53	17

Responses were obtained from 208 (89%) of the general practitioners and all 23 psychiatrists. The table shows their preferences. Sixty one general practitioners stated that their preferred summary was satisfactory. Of the general practitioners who opted for summary A, 10 requested more information. Of those who opted for summary B, 19 requested more information and five less detail. Of those who opted for summary C, one requested more information, six wanted less detail, and 10 suggested that a briefer summary would be adequate for subsequent admissions. Thirty four general practitioners mentioned that delayed receipt of summaries was common and caused problems, 19 requested more specific advice on management, and 22 expressed a definite dislike of long summaries. A significantly larger proportion of the psychiatrists than the general practitioners preferred summary C (table; $\chi^2=23.1$, $df=2$, $p<0.001$). Seven psychiatrists who opted for summary C suggested that a shorter version would be adequate for subsequent admissions.

Comment

Our response rates of 89% for the general practitioners and 100% for the psychiatrists suggest that we obtained the opinions of a representative sample of doctors. The response was higher than that in other questionnaire studies of general practitioners' opinions about letters and summaries from psychiatrists.²⁻⁴ Our findings regarding general practitioners' preferences extend those of Orrell and Greenberg for psychiatric discharge summaries² and agree with those of Margo for letters concerning psychiatric outpatients.³

Not surprisingly, most psychiatrists preferred summary C because this followed the Institute of Psychiatry's guidelines.¹ Unexpectedly, however, a substantial minority (27%) preferred the shorter, less structured summary B. We do not know of any other study assessing which form of discharge summary psychiatrists prefer, and a larger survey is needed.

Our results show clearly that separate summaries are required for the general practitioner and for hospital notes or, at least, that the general practitioner should receive a supplementary letter with the hospital summary.

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