

Case control study of 70 cases with hypophosphataemia during PN

P_i fell by at least 0.15 mmol to below 0.65 mmol/l between days one and seven following the start of PN.

Marvin et al. Pharm World Sci (2008) 30:329-335

Table 3 Comparisons of cases with controls; summary of findings

Factor	Reference category	Odds ratio	95% Confidence interval		<i>P</i> -value
			Lower	Upper	
Patients age (years)		1.038	0.994	1.084	0.089
Male	Female	1.552	0.499	4.829	0.448
Post Op	No operation	1.633	0.468	5.698	0.442
NRS score 3+	Score 0 or 1	38.28	3.924	373.5	0.002*
Phosphate content less than 12 mmol first 24 h	12 mmol or more phosphate	11.19	1.048	119.4	0.046*
Non-lipid phosphate content (mmol)		0.837	0.765	0.997	0.045*
PN rate over 70% of protein and calorie requirements at start	70% or less of requirements	23.49	3.683	149.9	0.001*
ITU	General ward	2.765	0.413	18.51	0.294
Cancer	Non cancer diagnosis	0.992	0.223	4.414	0.992
High blood glucose at baseline (>7 mmol/l)	Baseline glucose \leq 7 mmol/l	1.937	0.576	6.516	0.285
High serum calcium at baseline (>2.55 mmol/l)	Baseline calcium \leq 2.55 mmol/l	12.01	0.137	1053.6	0.276
High serum urea at baseline (>6.5 mmol/l)	Baseline urea \leq 6.5 mmol/l	0.091	0.001	11.18	0.329
Serum albumin at baseline (g/l)		0.959	0.882	1.044	0.335
Baseline C-reactive protein (mg/l)		0.997	0.989	1.004	0.369
Baseline Magnesium (mmol/l)		0.020	0.000	1.275	0.065

* Statistical significance at the 5% level

De Silva et al. BMJ 2008; 337(7661): 67–68
comment to
Mehanna et al. BMJ 2008;336:1495-8

Our survey of doctors, nurses, pharmacists, and dietitians (all members of their respective nutrition societies) on their attitudes to the guidance from NICE showed widespread disparities in practice.

Only 44% (8/19) of doctors compared with 70% (49/70) of dietitians followed the guidance.

Overall, 39% (57/146) of all responders thought the guidance represented safe practice, whereas 36% (53/146) thought they were excessively cautious.

Some responders thought that NICE guidelines were an obstacle to providing adequate nutrition, while others had never seen a case of the refeeding syndrome despite having always started nutritional supplementation at 100% of estimated requirements their career.

Complications of refeeding syndrome and their underlying mechanisms

Mehanna et al. BMJ 2008;336:1495-8

P ↓↓

Cardiac: Arrhythmia, congestive cardiac failure, cardiomyopathy, reduced cardiac contractility, hyper/hypotension, sudden death

Pulmonary: Failure or ventilator dependency

Neurological: Weakness, paraesthesia, altered mental state, paralysis, seizures

Muscular: Weakness, myalgia, rhabdomyolysis

Haematological: Platelet dysfunction, haemolytic anaemia, leucocyte dysfunction

Mg ↓↓

Cardiac: Arrhythmia, hyper/hypotension, tachycardia, sudden death

Pulmonary:

Neurological: Weakness, paraesthesia, altered mental state, ataxia, tremor, vertigo, tetany, seizures

Muscular:

Haematological: Anaemia

Gastrointestinal: Constipation, abdominal pain, diarrhoea, anorexia

Complications of refeeding syndrome and their underlying mechanisms

Mehanna et al. BMJ 2008;336:1495-8

K ⁺ ↓↓	<p>Cardiac: Arrhythmia, hyper/hypotension, cardiac arrest, digoxin toxicity, sudden death</p> <p>Pulmonary: Pulmonary oedema, retention of carbon dioxide</p> <p>Neurological: Weakness, altered mental state, paralysis</p> <p>Renal: Decreased ability to concentrate urine</p> <p>Muscular: Weakness, myalgia, rhabdomyolysis,</p> <p>Haematological:</p> <p>Metabolic: Alkalosis, glucose intolerance, hyponatraemia, ketoacidosis, metabolic acidosis,</p> <p>Gastrointestinal: Constipation, paralytic ileus</p>
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- Definition ?
 - ◆ hypo-electrolytes
 - ◆ fluid accumulation
 - ◆ hyperglycemia
 - ◆ any combination of these?
- Prevention in risk groups?
 - ◆ by underfeeding
 - ◆ by supplementary P_i Mg etc
- Or monitor and treat?
 - ◆ indication: biochemistry
 - ◆ indication: biochemistry and clinical signs