

DIALYSIS ADEQUACY AND FACTORS RELATED WITH PATIENTS WELL BEING

Authors: Vinod Mathrani¹, Peter Drew², James I Chess¹, Stuart Robertson², Mahdi Jibani³, Vandse I Aithal¹, Mick Kumwenda⁴, Gareth Roberts⁵, Ash I Mikhail¹
Hospitals: ¹Morrison Hospital, Swansea, United Kingdom ²Wrexham Maelor Hospital, Wrexham, United Kingdom ³Ysbyty Gwynedd, Bangor, United Kingdom ⁴Glan Clwyd Hospital, Rhyl, United Kingdom ⁵UHW, Cardiff, United Kingdom.

Objectives:

A global assessment of dialysis adequacy includes not only achieving target Kt/V or Urea Reduction but also achieving good control of metabolic acidosis, bone metabolism, anaemia, fluid balance and nutritional status. We performed a regional survey of our practice and collected data which are directly related to dialysis adequacy.

Serum/plasma albumin is an important predictor of future mortality/morbidity in patients with renal failure. This predictive power is a reflection of the effect of inflammation (albumin is a negative acute phase reactant) and malnutrition on albumin concentration¹, similarly Pre-dialysis metabolic acidosis has a range of adverse consequences, an increase in protein catabolism and anti-anabolic effects, a negative inotropic effect². Hyperphosphatemia is frequently found in haemodialysis patients, and have been linked to increased cardiovascular mortality. The normalization of plasma phosphate levels is therefore an important goal in the treatment of end-stage renal disease patients³.

A strong emphasis has been placed on elevated C-reactive protein (CRP) levels as an important risk factor for morbidity and mortality⁴. We looked our practice to find out levels of different variable like serum bicarbonate, serum phosphate, serum phosphate and CRP.

Methods:

606 patient data collected from 12 haemodialysis units in June 2013. Majority of the patients have 12 hours per week haemodialysis. Pre dialysis samples collected to check serum albumin, bicarbonates, C reactive protein (CRP) and phosphate levels on first session in beginning week of June 2013. Data recorded on pre generated proforma which were distributed among centres to record number of variables for haemodialysis adequacy assessment. Data for dialysis access were also recorded.

Results:

Average pre dialysis serum bicarbonate levels from all centres were between 22-29 mmol/l in 74%. Serum Albumin above 35 g/l found in 59% while 44.75% had serum phosphate levels above 1.7 mmol/l (table 1)

Serum CRP 15 mg/l in 40.2% of patients (table 2). It is also noted that higher levels of CRP were related to patient dialysed via vascular catheter 23.6 5.8 (87 cases), 15.5 2.3(12 cases) with graft and 15.5 2.3. (343 cases) with arteio venos fistula (AVF). we were unable to recorded data from one of the centres for CRP.

Table 1

UNITS	Total Patients	% Bicarb 22-29 mmol/l	% Albumin >35 g/l	% Phosphate 0.8 to 1.7 mmol/l	% Bicarb< 20 mmol/l	% Albumin < 25 g/l	% Phosphate > 1.7 mmol/l
1	17	82.4	88.2	76.5	5.9	0	23.5
2	15	86.7	86.7	66.7	6.7	6.7	33.3
3	45	75.6	73.3	60	2.2	0	33.3
4	75	78.7	82.7	68	6.7	0	29.3
5	73	56.2	23.3	58.9	8.2	12.3	39.7
6	16	87.5	25	56.3	0	0	43.8
7	76	84.2	93.4	72.4	7.9	0	25
8	84	81	76.2	54.8	3.6	3.6	39.3
9	81	70.4	24.7	69.1	8.6	7.4	29.6
10	18	66.7	27.8	77.8	0	5.6	11.1
11	24	58.3	83.3	50	20.8	0	50
12	82	63.4	24.4	74.4	11	12.3	20.7

Table 2

UNITS	Total Patient	% CRP< 5mg/l	% CRP 5-14.9 mg/l	% CRP >15mg/l
1	17	41.2	17.6	40.2
2	15	40	20	40
3	45	37.8	26.7	35.5
4	75	29.3	33.3	37.4
5	73	32.9	30.1	37
6	16	31.3	43.8	24.9
7	76	36.8	38.2	25
8	84	19	46.4	33.6
9	81	n/a	n/a	n/a
10	18	38.9	33.3	27.8
11	24	8.3	75	16.7
12	82	40.2	26.8	33

Conclusion:

Above results is the average from twelve dialysis units. Some centres has better control of the studied variable than others. This is possibly due to use of hemo-diafiltration modality in some centres and difference in vascular access. Overall it is found that there is a scope for better control of serum phosphate, serum bicarbonate across centres to improve patient' s morbidity and mortality. Minimizing dialysis central catheters has been proven in studies to reduce infection rates hence assuming less inflammation and achieving better control of CRP. Effect of more frequent daily dialysis on adequacy will be evaluated in our home haemodialysis population later.

References:

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