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THROMBOTIC MICROANGIOPATHY (TMA) INDUCED BY LONG-TERM B-INTERFERON THERAPY IN A PATIENT WITH MULTIPLE SCLEROSIS; Khurram Saleem, Khaled Boobés, Muhammad H Hasan, Yazan Alia, Jennifer Tuazon. Northwestern University, Chicago, IL, USA

β-Interferon therapy has been widely used as an immunomodulatory treatment for multiple sclerosis (MS). It is generally well tolerated, however more recently, renal side effects have been reported. We report a 53 year-old woman, treated with Betaferon (INF β-1B), who developed renal failure secondary to Thrombotic Microangiopathy (TMA). Considering the strong evidence of INF-α causing TMA and the numerous immunomodulatory activities shared by both INF-α and –β, we postulated Betaferon as the etiological agent of TMA.

Our patient, who was on biweekly injections of PEG interferon for twelve years, presented with hypertensive emergency. Serum creatinine (Cr) on admission was 2.08 mg/dL (normal 0.6-1.3 mg/dL), and reached a peak of 3.31 mg/dL, with proteinuria and hematuria. Her serological studies, including HIV, Hepatitis, and Urine Drug screen were negative. She was found to have elevated lactate dehydrogenase (LDH), low haptoglobin and peripheral smear with increased polychromasia and numerous schistocytes. Kidney biopsy was consistent with TMA. The INF-β therapy was held, and patient had improvement in her kidney function, with Cr stabilizing to 1.3 mg/dL.

TMA secondary to interferon should be in the differential when seeing patients on long-term interferon therapy presenting with acute hypertension, proteinuria, hematuria and acute renal failure.

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ASSCIATION BETWEEN HYPONATREMIA, OSTEOPOROSIS, AND FRACTURE: A SYSTEMATIC REVIEW AND META-ANALYSIS: Anawin Sanguankeo, Sikarin Upala, Bassett Medical Center, Cooperstown, NY, USA

Hyponatremia is the most common electrolyte disorder. Recent research showed that it may associate with osteoporosis and fracture. However, whether it directly associates or is a surrogate marker of other causes is still unclear. This is a systematic review and meta-analysis of observational studies assessing association between hyponatremia, osteoporosis, and fracture.

To explore whether there is association of osteoporosis or fracture in patients with hyponatremia compared with normonatremia.

We comprehensively searched the databases of PubMed/MEDLINE and EMBASE from date of inception to July 2015. The inclusion criteria were published studies evaluating bone mineral density (BMD), risk or prevalence of osteoporosis or fracture in patients with hyponatremia. A meta-analysis using a random-effects model comparing between hyponatremia and normal serum sodium groups was performed. We calculated pooled mean difference (MD) in BMD, pooled hazard ratio (HR) or odds ratio (OR) of fracture and osteoporosis. Factors that may predict these associations were evaluated in subgroup analysis and meta-regression.

From 29 full-text articles, fifteen observational studies involving 205,342 participants met our inclusion criteria. Twelve studies were included in the meta-analysis. There was a significant association with fracture and osteoporosis in patients with hyponatremia with OR = 1.99 (95% CI: 1.50-2.63) and 1.34 (95% CI: 1.02-1.76) for studies that reported OR, and increase risk of fracture with HR=1.58 (95% CI: 1.22-2.05, P<0.001) for studies that reported HR. Age and sodium level were not predictors of risk of fracture in meta-regression.

Hyponatremia significantly associates with osteoporosis and fracture. Physician should be aware of this association even with mild hyponatremia. More prospective studies evaluating osteoporosis and fracture risk reduction after hyponatremia correction should be performed.

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MAGNESIUM LEVEL AND MORTALITY IN CHRONIC KIDNEY DISEASE AND DIALYSIS PATIENTS A SYSTEMATIC REVIEW AND META-ANALYSIS

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Cardiovascular disease (CVD) is a leading cause of death in chronic kidney disease (CKD) and end-stage renal disease patients. Although there has been established studies between high serum calcium and phosphate concentrations and mortality in this population, existing studies focus on magnesium concentration and mortality still have inconclusive evidence. We therefore performed a systematic review and meta-analysis to evaluate risk of mortality in dysmagnesemia in CKD and dialysis patients and to assess factors that predict this association.

We comprehensively searched the databases of PubMed/MEDLINE and EMBASE from date of inception to September 2015. The inclusion criteria were published studies evaluating association of magnesium, hypomagnesemia, or hypermagnesemia and mortality CKD or dialysis patients. A meta-analysis using a random-effects model comparing mortality between dysmagnesemia and normal serum magnesium groups was performed. We calculated pooled risk ratio (RR) of mortality.

From 15 full-text articles, 7 prospective observational studies involving 17,520 participants met our inclusion criteria and were included in the meta-analysis. There was a significant association of hypomagnesemia and mortality with pooled RR = 1.42 (95% CI: 1.16-1.79). However, hypermagnesemia is not associated with increase mortality with RR = 1.82 (95% CI: 0.66-1.03).

Hypomagnesemia significantly increases risk of mortality in CKD or dialysis population. Physician should be aware of this association. More prospective studies evaluating benefits of magnesium correction in CKD and dialysis patients should be performed.

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COMPARATIVE STUDY OF NON SURVIVORS AND SURVIVORS AMONG TWICE WEEKLY HEMODIALYSIS PATIENTS IN INDIA:[1]Suresh S,[2]Sylvia R,[1]Naksha J A,[1]Geetha S,[1]Topoti M,[1]Vidyashankar P,[1]Avinash I,[1]Tanmay,[1]Selvaraj V,[1]Gayathri RG; [1]DaVita Care India Pvt Ltd, [2]DaVita Care Pte Ltd

Background: HD practice varies globally. Practice pattern and characteristics of non survivors (NS) and survivors (S) on 2x HD patients were compared. **Methods:** Retrospective study of pts on HD: July1, 2013 to Dec 31, 2014 Inclusion criteria: >30 days of HD, 1.8 - 2.3 HD/week, demographics, comorbidities, hospitalization, cumulative follow up, permanent access, Hb, S.Alb, Ca, Ph, IDWG & UF rate compared. As applicable independent "t", Mann-Whitney – U, Chi square (Pearsons or exact). Univariate and multiple Cox regressions done. For analysis: SPSS 22 software. **Results:** N=255; NS: 61, S: 194. Follow-up period: 34 to 1033 days. NS vs S: CAD: 17.5% vs 6.4% (<0.05),CVA: 1.8% vs 2.3%; HCV: 1.8% vs 10.9% (p<0.05), Hep B: 7% vs 1.1% (<0.05): Significant differences (p<0.05): >Age(60± vs 52 ±14yrs) > DM(62% vs 33%) >hospitalization(43% vs 26%), Hb(8.89±1.68 vs 9.5±1.96) Albumin(3.5±0.92 vs 4.4±1.4). No difference: gender, HD sessions, Std Kt/V, URR, S Ca, S Ph, IDWG, UF rate. Multiple regression: lack of permanent access, lower Hb, S.Alb & Std Kt/v: predicted mortality after controlling for age, DM, IDWG, UF rate. **Conclusion**: Lack of permanent access, lower Hb, Std Kt/v, S. Alb predicted mortality; controlled for age, diabetic and fluid status.

Table1: Predictors of survival in 2x HD

	Univariate HR	P Val	Multiple HR	P Val
Age	1.03(1.00-1.05)	0.003	1.02(0.997-1.05)	0.095
Diabetes	2.28(1.35-3.84)	0.002	1.43(0.76-2.70)	0.27
Permanent access	0.21(0.12-0.38)	0.00	0.30(0.15-0.59)	0.001
IDWG	0.80(0.65-0.98)	0.03	1.15(0.83-1.57)	0.40
UF rate	0.18(0.05-0.7)	0.01	0.19(0.03-1.39)	0.10
Hb	0.69(0.58-0.82)	0.00	0.74(0.62-0.89)	0.002
Std Kt/v	0.17(0.07-0.44)	0.00	0.16(0.05-0.48)	0.001
S. Alb	0.33(0.18-0.63)	0.00	0.57(0.35-0.93)	0.024