Mineral balance studies in preterm with respiratory distress syndrome intravenously fed during first week after birth

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SumtmarySummaryDisorders of fluid, electrolyte and mineral balance are among the most commonly encountered problems in the care of newborn infants. In maneging these problems, the differences in the balance of electrolytes, between NBW, LBW, VLBW, ELBW need to be considered, also effect of HMD as regard severity, recovery, complication (mainly renal), management in form of drugs (prenataly to mothers or postnataly to preterm neonate) or mechanical ventilation (CPAP, IMV mainly) must be considered.This study aimed to do comprehensive balance studies assessing all six important electrolyte (Na, K. Ca, mg, Cl, P) during first week of life by taking 3 samples of blood and urine, the 1s` sample after delivery (within 6-12h). The 2” sample after 48 h and the 3’d sample after 7 day.The present study included 30 neonates preterms complaining of marked RD. On admission 20 cases diagnosed as mild to moderate RDS, 5 cases as severe RDS and 5 cases with RD due to other causes. Twenty cases managed by 02 therapy, 9 by IMV, one case by CPAP. The studied preterm infants include] 7 females (49.7%) and 13 male, (43.3%) 17 delivered by NVD and 13 by CS. 12 baby died (40%),7 died before 48h and 5 after 48 h and the rest cured (60%).184SummaryAccording to body weight the preterm neonates were classified into 4 groups:1-NBW: 5 cases (16.6%) 3- LBW: 16 cases(53.3%)2-VLBW: 5 cases (16.6%) 4- ELBW: 4cases (13.3%) All neonate evaluated clinically and radiologically as regard RDS. As regard electrolyte abnormality in initial sampleHyponatremia are more frequent in VLBW (80%) than other groups where it is present with close percentage NBW (60%), LBW (56%), ELBW (50%). While, Hypernatremia occur only in NBW and VI.BW with the same percentage (20%).Hypokalemia occurred in case of VLBW and ELBW with 20% and 25% respectively. While, hyperkalemia occur in all group (60%) in NBW then (50%) in LBW, (37%) of LBW and finally (20%) of VLBW. Hypophosphatemia occurred in (50%) of ELBW and (40%) Hyperphosphatemia occurred in other two groups in NBW (20%) and LBW(18%).Hypomagnesemia occurred in 3 cases of LBW (18%). While hypermagnisemia was frequent in NBW with (60%) followed by ELBW (25%) and finally LBW by (18%) and no cases in VLBW group.Hyperchloremia occurred only in LBW group by 12% while hypochioremia occur more frequent in VLBW (40%) then (20%) in NBW and no cases recorded in other groups.185SummaryHypocalcemia occurred more frequent in NBW (40%) followed by VLBW (20%) followed by LBW (12%). While hypercalcemia occurs in 25% of

ELBW, followed by NBW (20%) and last by (12%) in LBW group.As regard electrolyte abnormality In follow up samplesHypokalemia, and hypocalcemla not recorded in four groups.Hypernatremla, hyperphosphotemla, hypomagnesemia, hyperchioremia recorded only in LBW group by following rates respectively 6%, 12%, 12%, and 6%.Hyponatremla, hyperkalemla, hypermagnesmia is present in all groups as follow:3hyponatremia more frequent in VLBW group (60%), followed by ELBW (50%) then NBW (40%), and lastly LBW (37%).3Hyperkalemia are more frequent in NBW group (60%), followed by ELBW (50%), followed by VLBW (40%) and LBW (37%).3hypermagnesemia with (60%) in VLBW (50%) in ELBW , (40%) in NBW and 25% in LBW.Hypophosphatemia, hypochloremia and hypercalcemla not recorded in ELBW group but presented in the other group by the following sequences:3Hyperphosphaternia occurred in (60%) in VLBW followed by (20%) in NBW and (6%) in LBW3Hypochloremia occurred in (20%) of VLBW followed by (6%) of LBW.3Hypercalcernia occurred in (20%) of NBW and (6%) of LBW only.186SummaryComparison of initial and follow samples of all groups show that mean serum sodium, potassium, magnesium calcium increased from initial to follow up samples through the period of the study reflecting proper IV fluid and electrolyte correction. While mean serum, creatinine, urea decreased through the period of the study reflecting maturation of renal functions and improved ventilation of the studied neonate.Statistical comparison of serum level of all studied electrolytes of I st sample show that:Urea, creatinine, phosphate, magnesium, chloride. calcium, plasma protein show significant difference (P