THE PRIMARY CARE COMPANION
FOR CNS DISORDERS

Supplementary Material

Article Title: Central and Extrapontine Myelinolysis in the Setting of Hyperglycemia

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List of Supplementary Material for the article

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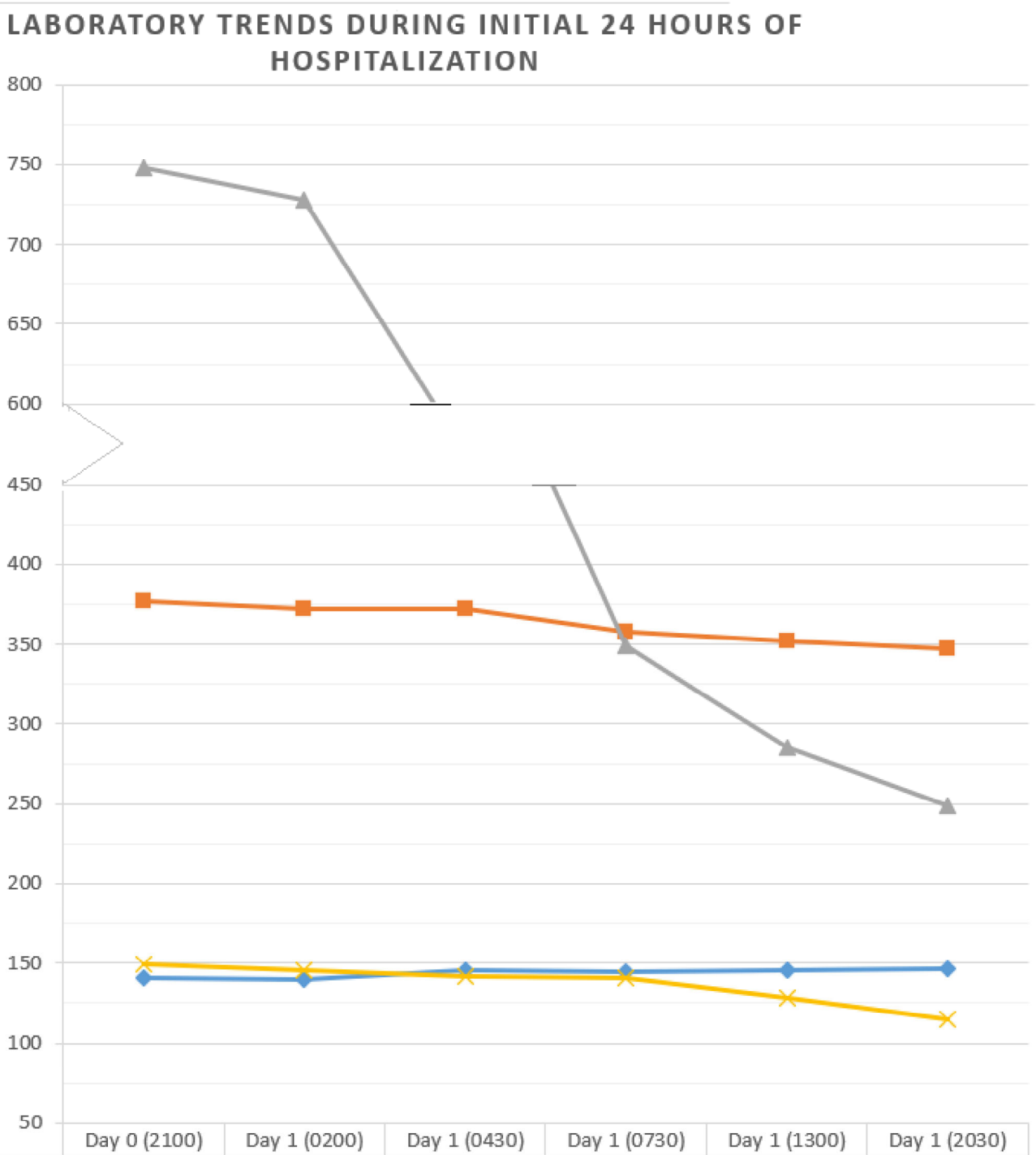
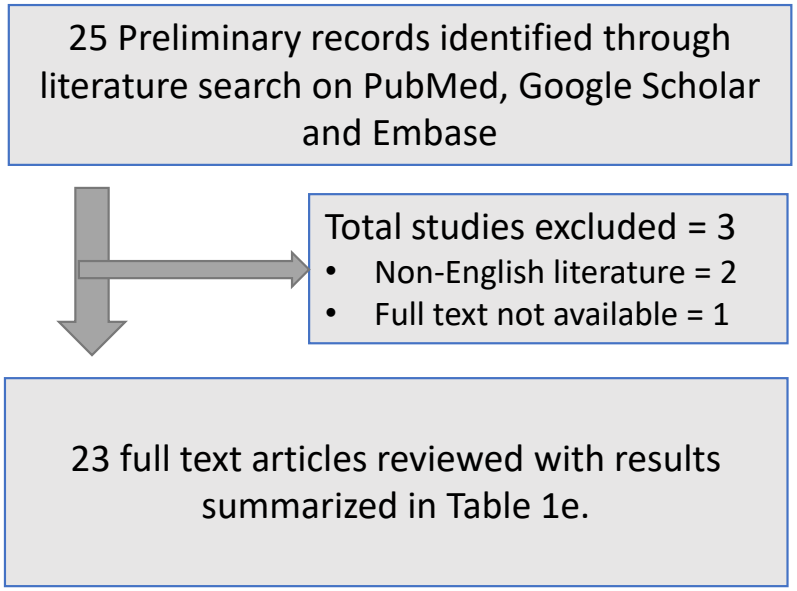
Supplementary Figure 1



	Day 0 (2100)	Day 1 (0200)	Day 1 (0430)	Day 1 (0730)	Day 1 (1300)	Day 1 (2030)
Sodium (mEq/L)	141	140	145	144	145	146
Osmolarity (mOsm/Kg)	377	372	372	358	352	347
Glucose (mg/dl)	748	728	569	349	285	249
BUN (mg/dl)	149	145	142	141	128	115



Supplementary Figure 2: Flow Diagram of Literature Screening

Supplementary Table 1: Literature Summary of Cases With Osmotic Demyelination Syndrome Associated With Hyperglycemia

Case Report	Age (years)	Sex	Glucose (mg/dl)	Osmolality (milli osmoles/Kg	Na (mEq/L)	BUN (mg/dl)	Hb A1c %	K (mEq/L)	Presentation	Outcomes
ODS cases attributed to hyperglycemic hyperosmolar state										
Our Case	61	M	748	374	141	145	10.9	4.7	Found unconscious followed by persistent dysarthria and quadriparesis.	Discharge to inpatient rehab at 1 month. Improved mobility and swallowing but required total care.
Hirosawa et al (e1)	55	M	1011	324	126	43.8	17.8	3.2	AMS x 3 days and dysmetria.	Return to baseline over several weeks
Saini et al (6)	45	F	491	307	132	4	18	4.3	Ataxia, R UE pronator drift x 2 weeks	Gradual improvement in gait by second week
Pliquett et al (e2)	55	M	524	296	133	-	17.6	-	Dysmetria and Dysarthria x 5 days. Liver cirrhosis	Discharged to outpatient rehab Able to walk by 3 months
Hegazy et al (4)	43	F	828	-	181	11		4.6	AMS. Brisk plantar response developed during admission	Complete recovery by week 4
McComb et al (e3)	54	F	954	-	169				Obtunded	Deceased at 21 days
Mao et al (e4)	55	M	685	318	134	-	17.5	4.3	R focal seizures which evolved into EPC, R hemiplegia.	Regain of function by 1 m
Guerrero et al (5)	25	M	> 700	-	-	-	-	-	L hemiparesis developed as AG closed	-
Rodríguez-Velver et al (e5)	47	F	838	320	133	21	10.1	4.6	AMS and GTC. Worsening weakness on 24 hours	Return to baseline by 6 months
Kusumoto et al (e6)	87	F	1000	459	179	-	10.8	5.1	Fever, involuntary trunk and UE movements followed by coma	Return of spontaneous speech reported on 1 year followup
Gouveia et al (e7)	38	M	1225	412	154	38		5.4	AMS x 5 days, h/o chronic alcoholism	Remained poorly arousable, transferred to inpatient rehab
Yoshikawa et al (e8)*	84	F	465	308	113	168	-	6.3	AMS, worsened on HD 8.	Died in a few weeks
Bline et al (e9)*	14	F	> 600		130	64	13.8	2.8	Obtunded and emesis x 4days. Decline in mental status on HD 6.	Return to baseline by week 6
Kim et al (e10)	61	M	627	324	133	43.9	18.1	3.4	Dysarthria, dysphagia, dysmetria x 10 days. H/O cirrhosis	Gradually regained swallowing and mobility over weeks.
Kote et al (e11)	37	F	482	327.66	140	30.5	8.8	3.35	Dysarthria and dysmetria x 10-14 days. Exam decline after 6 hours of initiating treatment	Deceased at 15 days
Kumar et al (e12)	62		542	316	135	38	10.6	3.8	Dysphagia, dysarthria, and ataxia x 10-14 days	Improved dysphagia, dysarthria and walk independently upon discharge.
Lee et al (e13)	36	M	823	336	145	-	-	-	Dysphagia, dysarthria, and ataxia Chronic alcoholism	Dysphagia and ataxia resolved by 1 month, Dysarthria persisted at 4-month follow up.
Sharma et al (e14)	20	F	402	318	142		14.2	4.2	Dysarthria and generalized weakness x 15 days	Return to baseline by 30 days.
Yoong et al (e15)	53	M	594.6	340	135		14	4.6	Frequent falls and dysarthria x 2 months	Near complete recovery reported
Ramineni et al (e16)	50	M	546	318	136	66	13	3.6	Dysarthria, ataxia and generalized weakness x 10 days	Mild dysarthria at 1 month. Independent in all ADLs
Talluri et al (e17)	45	M	178	317	140	95		3.9	Intermittent ataxia, dysarthria and pseudobulbar affect	Return to baseline at 8 weeks
Cases attributed to treatment of hyperglycemic hyperosmolar state										
O'Malley et al (e18)	49	F	1910	399	134	23.3		2.2	Drowsy. No focal deficits. Flaccid quadriparesis noted on day 9 when weaned off sedation	Inpatient rehab, near complete recovery at 6 months
Burns et al (e19)	93	M	524	343	137	48		4.6	AMS and emesis. Ataxia developed 48 hours after admission	Improved gait at 1 month
Hsieh et al (e20)	29	M	646	-	138	-	-	2	AMS x 3 days. Declined 40 hours after admission	Remained vent dependent x 6 weeks, discharged to rehab.

*Unclear if acute treatment played any role in development of ODS
Abbreviations: AMS = Altered Mental Status; UE = Upper extremities; R = Right, L = Left
H/O = History of; GTC = Generalized tonic clonic seizure; HD = Hospital day

Supplementary Table 2: Literature Search Terms Used for the Review of Osmotic Demyelination Syndrome Associated With Hyperglycemia

- Osmotic Demyelination Syndrome
- Osmotic Pontine Myelinolysis
- Extra pontine Myelinolysis
- Hyperglycemia
- Hyperosmolar Hyperglycemia
- Diabetic Ketoacidosis

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