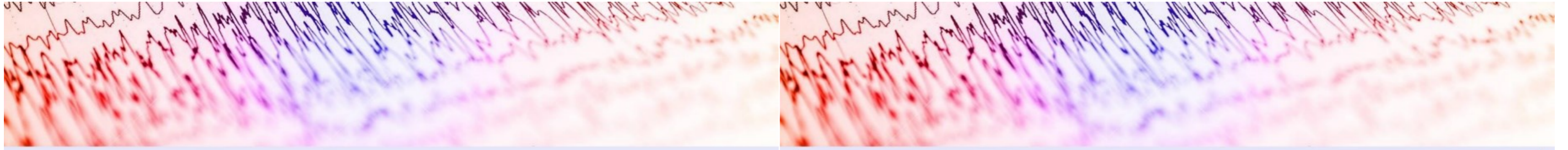


Progression from Refractory Status Epilepticus to Super Refractory Status Epilepticus in ICU Admitted Patients

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About Refractory Status Epilepticus

- Status epilepticus is a neurological disorder involving prolonged seizures, or repeated seizures without full recovery in between.
- If patients do not respond to anticonvulsants, seizures continue, and this is described as *refractory status epilepticus*.
- In some, seizures still occur even with administration of anesthetics- called *super refractory status epilepticus*.
- We explored clinical and demographic differences between patients admitted to intensive care units with refractory status epilepticus and those who were found to have super refractory status epilepticus.

Study of Progression to Super Refractory Status Epilepticus

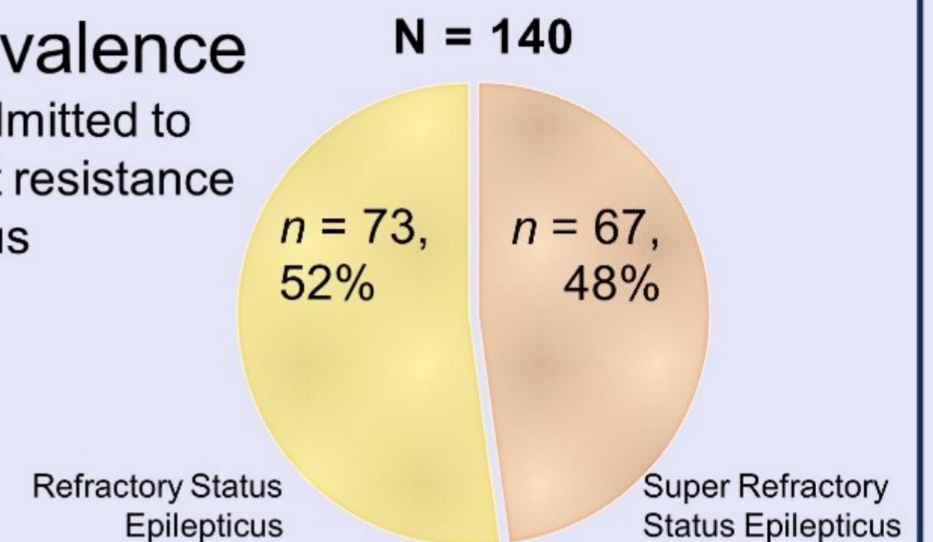
- We performed a retrospective analysis of a consecutive series of patients diagnosed with, and treated for, refractory status epilepticus.
- All patients were admitted to intensive care units of two hospitals in Ecuador, over a five-year period.
- A total of 140 cases were admitted and studied.
- Demographic, clinical and treatment variables were recorded.

Conclusions:

- SRSE among patients admitted to intensive care units because of the refractory nature of their seizures was high, involving almost half of all such admissions.
- Super refractory patients spent a mean of 45 days in hospital, which is somewhat longer than the 39 days spent in hospital by patients with refractory disease.
- Lack of consciousness at presentation appears to be an important sign indicating a higher risk for refractory status epilepticus progressing to super refractory status epilepticus
- Other risks of super refractory status are specific etiologies including traumatic brain injury and systemic / metabolic disorders.

Results: Prevalence

Of all the cases admitted to ICUs for treatment resistance of status epilepticus



Results: Univariate analysis

Comparing refractory cases to super refractory cases

	All cases N = 140	Refractory n = 73	Super Refractory n = 67	Sig.
Demographics				
Age	41.2 (19.6)	42.6 (20.0)	39.6 (19.2)	.37
Sex (male)	88 (63%)	46 (63%)	42 (63%)	>.99
Treatment and Outcome				
Hospital stay in days	41.8 (29.0)	38.8 (28.6)	44.9 (29.3)	.22
ICU stay in days	25.2 (20.6)	21.3 (19.2)	29.4 (21.4)	<.01
Midazolam max/dose (mg/Kg/h) ²	0.35 (0.22)	0.36 (0.24)	0.34 (0.20)	.94
Midazolam treatment (days) ²	6.3 (5.4)	6.5 (5.3)	6.1 (5.5)	.87
Propofol max/dose (mcg/Kg/min) ³	82.0 (49.2)	63.1 (40.1)	87.1 (50.3)	.06
Propofol treatment (days) ³	3.7 (2.0)	2.8 (1.4)	4.0 (2.1)	.04
New clinical or EEG seizure after first 6 hours starting anesthetic infusion.	80 (57%)	30 (41%)	50 (75%)	<.01
Withdrawal seizures	44 (31%)	16 (22%)	28 (42%)	.02
Vasopressors administered	75 (54%)	34 (47%)	41 (61%)	.12
Severe hypotension	63 (45%)	27(37%)	36(57%)	.07
Tracheostomy	84 (60%)	36(49%)	48(72%)	.01
Withdrawal of care	9 (6%)	3 (4%)	6 (9%)	.21
Outcome (Rankin score)	4.2 (2.0)	3.8 (2.1)	4.7 (1.7)	<.01
Clinical Features and History				
Seizure history	34 (24%)	22 (30%)	12 (18%)	.14
Classification of SE at onset				.08
Focal. Absence. Myoclonic	16 (11%)	12 (16%)	4 (6%)	.09
Generalized convulsive	67 (48%)	36 (49%)	31 (46%)	.85
Non convulsive SE	57 (41%)	25 (34%)	32 (48%)	.10
Consciousness Level on Hospital Admission				
Alert	33 (24%)	25 (34%)	8 (12%)	<.01
Somnolent/confused	20 (14%)	11 (15%)	9 (13%)	.97
Stupor/comatose	87 (62%)	37 (51%)	50 (75%)	<.01
Etiology of Status Epilepticus				
Epilepsy	22 (16%)	13 (18%)	9 (13%)	.63
Cerebrovascular disease	23 (16%)	13 (18%)	10 (15%)	.82
Traumatic brain injury	42 (30%)	16 (22%)	26 (39%)	.05
Systemic/metabolic	16 (11%)	13 (18%)	3 (5%)	.03
CNS infections	20 (14%)	9 (12%)	11 (16%)	.65
NORSE/tumors/degenerative	8 (6%)	6 (8%)	2 (3%)	.28
Other etiology	9 (6%)	3 (4%)	6 (9%)	.31
Acute etiology	116 (84%)	56 (77%)	60 (91%)	.04
Etiology with focal structural lesion in neuro-radiological studies	73 (52%)	33 (45%)	40 (60%)	.12
STESS score	2.6 (1.1)	2.3 (1.1)	2.9 (1.0)	<.01

Results: Multivariable analysis

Identifying independent predictors of super refractory status

	Odds ratio	95%CI of Odds ratio	Sig.
Not alert on admission	3.21	1.29, 7.96	<.05
Not Focal.Absence.Myoclonic	2.43	0.69, 8.58	.17
Traumatic Brain Injury	1.79	0.81, 3.94	.15
Acute etiology	2.15	0.74, 6.26	.16

Eugenio Espejo Hospital (Quito)



n = 42 cases

Luis Vernaza Hospital (Guayaquil)



n = 98 cases



For further details of this research contact Dr Graham Pluck email: g.c.pluck@gmail.com



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