Patient accepted to ER with diagnosis of first seizure: predictive variables of convulsive syncope

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Introduction

Syncope is a very common clinical manifestation and, occasionally, can present with dystonic movements, automatisms and jerks, thus mimicking a seizure. So, the clinical presentation of epilepsy and syncope can be confusingly similar. The aim of this retrospective study is to propose a possible algorithm -based not only on clinical presentation - to determine, in an emergency setting, whether transient loss of consciousness (T-LOC) associated to spasms is caused by seizure or syncope.

Methods

We studied 362 consecutive adult patients, accepted by the Udine Emergency Room from 1st Jan 2014 to 31st Dec 2015 and evaluated by a Neurologist due to presumptive diagnosis of “first seizure”. At the end of the work up in ER, 321 patients were diagnosed with first seizure and 41 patients with convulsive syncope. A 12-months patients’ follow up was then performed to confirm the diagnosis. Of 362 patients included in the study, 61 (all of them diagnosed as first seizure) could not follow an adequate 12-months follow up. The remaining 301 patients were observed for a suitable period.

Results

All the 41 diagnoses of convulsive syncope were confirmed, whereas of the 260 diagnosis of first seizures 125 patients received a diagnosis of epilepsy at the end of follw-up and 135 patients stayed with a diagnosis of first seizure. Many different features of seizure and syncope were analyzed to determine which variables were statistically significant and mainly predictive of the two entities.
We confirm that history is essential and bystander observations are important to distinguish the two entities. Negative neurological examination (OR 4.36), EEG (OR 2.83), CT scan (OR 4.37) were significantly predictive of syncope, whereas the opposite conditions, in addiction to increased lactate levels (OR 0.21), tongue or lips bite (OR 0.25), neurological and psychiatric comorbidities (OR 0.18) were predictive of seizure. Moreover, in front of a T-LOC with convulsive movements, it is important to consider the following aspects that could be confusing: firstly, ictal bradycardia and ictal asystolia, induced sometimes by left temporal epilepsy; secondly, anoxic epileptic seizures, induced by cerebral hypoperfusion in children; and lastly, psychogenic non epileptic seizures.

Conclusion

Convulsive syncope is a rare condition, but it can cause misdiagnosis and it represents a challenge for First Aid Physician and for Neurologist. A correct identification is extremely important in order to diagnose potentially fatal conditions and to start a prompt treatment of the underlying disease.

	Fattori di rischio	Sincope	Crisi epilettica
Dati anamnestici	Movimenti associati a perdita di coscienza	Irrigidimento tonico o scosse miocloniche	Movimenti tonico-clonici Ad esordio focale
	Anamnesi positiva per malattie neurologiche o psichiatriche	Non comune	Comune
	Luogo dell’evento	Pubblico	Domicilio
	Episodi in sonno	Non rilevabili in sincope	Crisi morfeica
	Anamnesi tossicologica positiva	Non comune	Comune
Esame obiettivo	Pressione arteriosa > 125 o > 75 mmHg	Non comune	Comune
	Frequenza cardiaca > 100 bpm	Non comune	Comune
	EON	Nella norma	Segni di lato Altre alterazioni all’EON (es. sopore, confusione, disorientamento)
	Morsus linguae	Raro (anteriore)	Comune (laterale)
Esami strumentali	TC capo	Nella norma	Massa occupante spazio alla TC
	EEG	Nella norma	EEG eseguito < 24 ore con anomalie epilettiche o aspecifiche
Esami di laboratorio	Sodiemia	< 125 mmol/L	
	Potassiemia	< 3,6 mmol/L	
	Calcemia	Comune < 1,9 mmol/L	
	ALT o AST	> 50 UI/L	
	PCR		> 10 mg/L
	Lattati		Comune > 1,8 mmol/L

Table 1. *Clinical, laboratoristic and strumental findigs associated with convulsive syncope and epileptic seizure*

Bibliography

- *1. 2018 ESC Guidelines for the diagnosis and management of syncope.*
- *2. How to differentiate syncope from seizure. Sheldon R. Cardiol Clin 33 (2015) 377-385.*
- *3. Syncope. Saklany P., Krahn A., Klein G. Circulation. 2013; 127:1330-1339.*