

Management and treatment of Status Epilepticus: a retrospective study

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Objectives: Status Epilepticus (SE) is the second most frequent neurological emergency¹. In spite of this, poor evidence about the management of refractory SE are available up to now. The aim of the present retrospective study was to describe the management of a large number SE episodes treated at the Policlinico A.Gemelli during a period of 4 years.

Materials and methods: 123 treatment episodes in 100 patients (54 males and 46 females, aged 18 to 97 years old) were studied. Patient's demographic and epileptic characteristics were examined. Data about treatment, complications and outcome at discharge were available for all of them. Considering as effective the last drug introduced before the termination of SE, the primary outcome measure was the identification of the superiority of a medication compared to all those used: antiepileptics (AEDs), benzodiazepine or anesthetics. In order to detect possible causative factor, patients treated with Anesthetics, were included in 'Anesth+' group. The other patients were counted in the 'Anesth-' group. Clinical, neuroradiological, neurophysiological, Status Epilepticus Severity score (STESS), Glasgow coma scale (GCS) score and total number of AEDs used for each SE data were compared between groups.

Results: The overall response rates of each drug were 50%, 50%, 39.2% and 24.7% for phenytoin (PHT), benzodiazepine (BZD), valproate (VPA) and levetiracetam (LEV) respectively. Anesthetics, administered in the 65.04% of the cases, stopped SE in 62.5% of treated episodes even if associated with worse outcome.

a	Subjects	M/F	Age	Drugs used				STESS	GCS	exitus
				mean	mode	min	max			
Anesth+	80	52/28	56.36 ±18.81	3.2	3	1	6	3.2	4.85	16
Anesth-	43	23/17	64.72±8.48	2.5	2	1	5	3.16	8	9

Fig.1 (a,b). Descriptive analysis. Comparison of demographic and clinical data (a) and etiology of SE in the two groups was made between the two groups: Age (Anesth+: 56.36±18.81; Anesth-: 64.72±8.48; p=0.034), GCS (Anesth+: 4.9; Anesth-: 8; p=0.004) and medium total number of AEDs used in each SE (Anesth+: 3.2, Anesth-: 2.5, p=0.013) were statistically different.

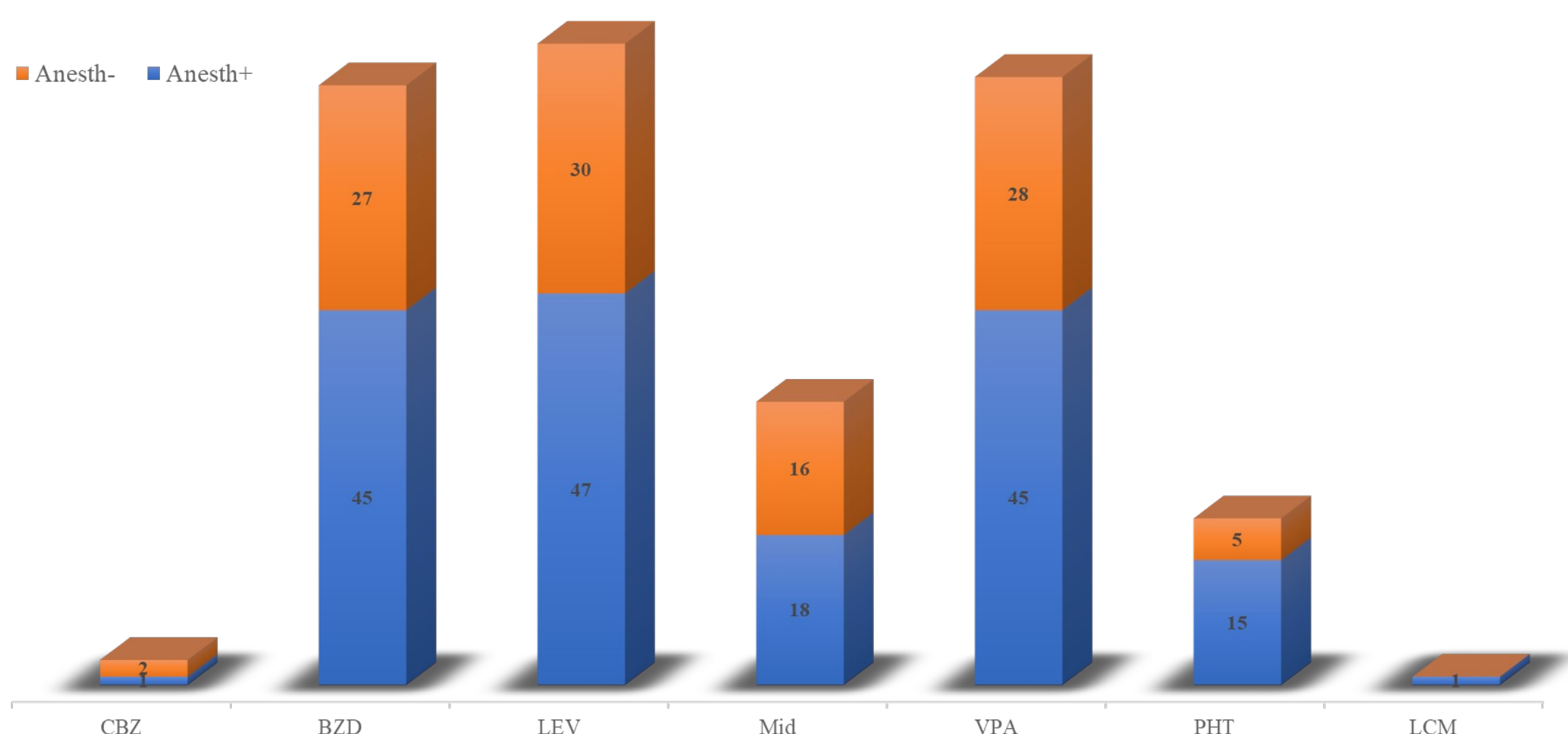
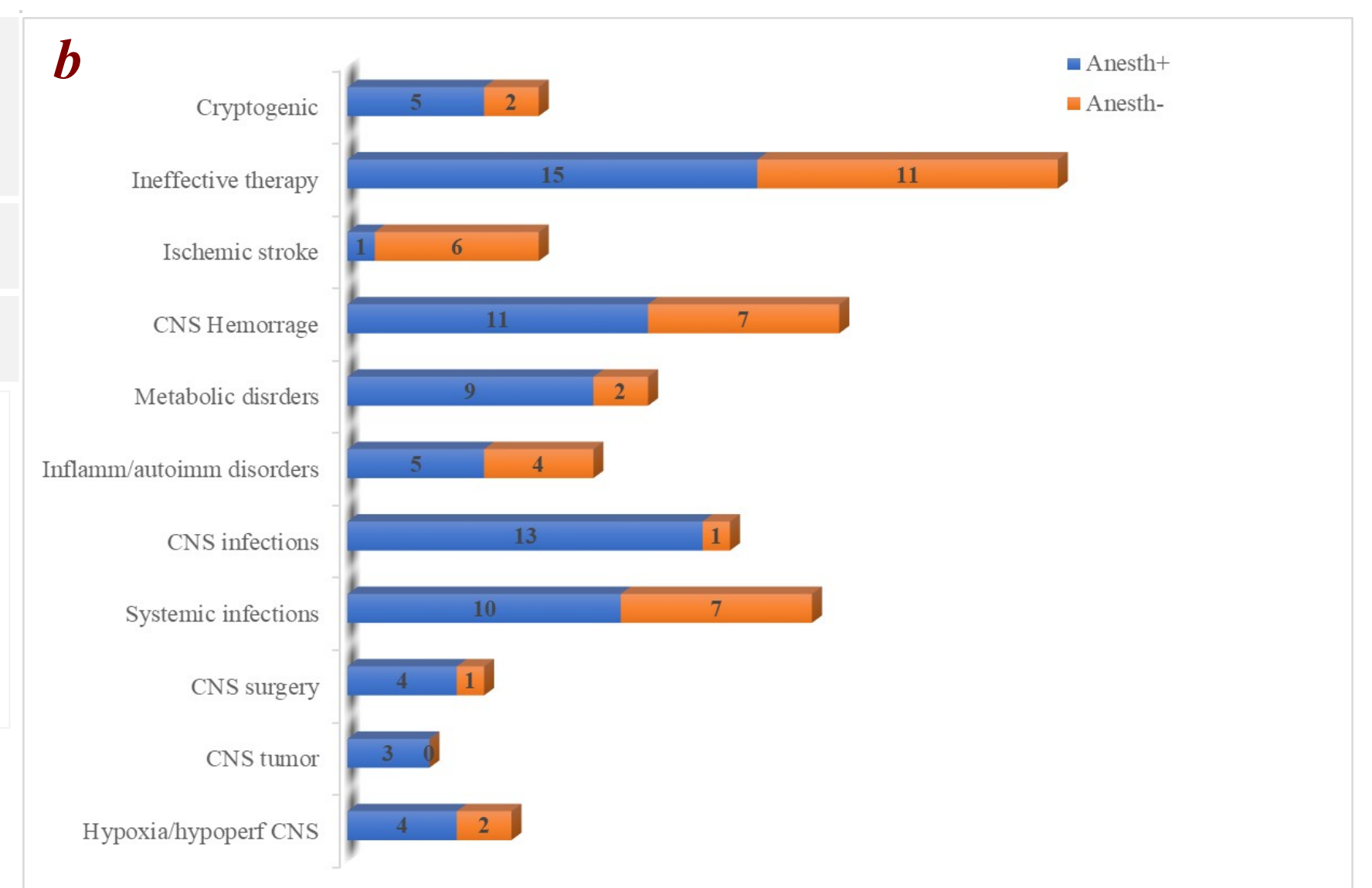


Fig.2 Drugs used in the two groups. Anaesthetics were required in the most of the cases, 65.04% (80/123), with a successful rate of 62.5%. Among the AEDs LEV, the most used (62.6%), showed lower effectiveness compared to PHT and VPA.

In 'Anesth+' group, all the AEDs were more effective than benzodiazepine (p>0.01); comparison between phenytoin and valproate did not reach significant difference. Conversely, phenytoin showed higher efficacy compared to levetiracetam (p<0.05).

In 'Anesth-' group, there were no efficacy differences between AEDs but phenytoin showed the higher response rate.

Discussion: Notably the most of patients required anesthetics and both AEDs and benzodiazepine, especially when not timely introduced, failed in sparing its use in the most critical cases. Comparing the different medications, the use of phenytoin and valproate, and also levetiracetam was more successful than benzodiazepine in resolving SE, confirming benzodiazepine inefficacy in subsiding refractory SE.

Conclusions: even though this study confirms current guidelines, a blinded randomized trial is urgently needed to provide stronger evidences in the treatment of refractory SE.

Reference: 1. Hesdorffer DC, Logroscino G, Cascino G, Annegers JF, Hauser WA. Incidence of status epilepticus in Rochester Minnesota, 1965–1984. *Neurology* 1998;50:735-741.