ORAL LOADING DOSE OF PHENOBARBITAL TO ACHIEVE ITS THERAPEUTIC EFFECTS IN PEDIATRIC PATIENTS WITH ACUTE REPETITIVE SEIZURES IN THE PHILIPPINE CHILDREN'S MEDICAL CENTER FROM THE YEAR 2019-2021: A RETROSPECTIVE STUDY

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INTRODUCTION

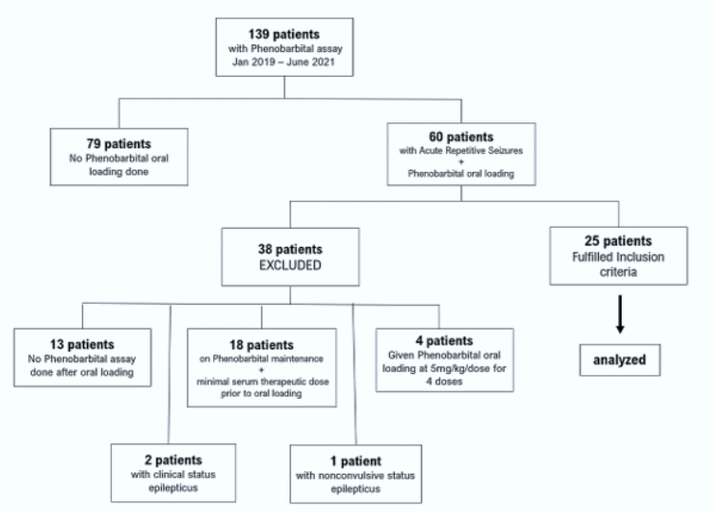
Intravenous Phenobarbital has been unavailable in our institution since 2019. Oral Phenobarbital remains available and has been administered by oral route at a dose of 15-20mg/kg as a single dose in other countries. However, very few published papers are available for review.

OBJECTIVES

The primary objectives were to determine whether oral administration of Phenobarbital is adequate to achieve both therapeutic serum levels within 24 - 48 hours as well as clinical seizure control in pediatric patients aged 1-month to 18-years who presented with acute repetitive seizures.

METHODS

This is a retrospective single-center review on a series of 25 pediatric patients admitted for acute repetitive seizures and who were given an oral Phenobarbital loading dose of 15-20mg/kg either as a single dose or in two divided doses twelve hours apart.



RESULTS

Time (in hours) when Phenobarbital assay was taken	No. of patients	Oral loading dose given	
		1 Dose (15-20 mg/kg/dose) n=11	2 Doses (10 mg/kg/dose) n=14
24th hour	20	10 (90.9%)	10 (71.4%)
48th hour	5	1 (9.1%)	4 (28.6%)

All patients achieved therapeutic serum levels within 24-48 hours after oral loading, with higher serum levels seen at the 48th hour. Median serum Phenobarbital level was 19.8 μg/ml (IQR=11.5) at the 24th hr and 24.4 μg/ml (IQR=26.6) at the 48th hour. Comparison of serum levels between the two oral loading doses was significant at 5% (p=0.023).

Majority of the patients achieved adequate seizure control without requiring additional ASMs (76%). The most common adverse event in both arms noted was transient drowsiness in 72%.

CONCLUSION and RECOMMENDATION

Oral loading of Phenobarbital at a dose of 15-20mg/kg/day given either as a single dose or in two divided doses is an effective and safe alternative in achieving therapeutic serum levels and adequate seizure control at the 24th-hour post-loading. This practice may be a promising alternate intervention in centers without intravenous Phenobarbital available. This study was limited due to its retrospective nature and the small sample size. A prospective and wider spectrum study is recommended.

Keywords: Phenobarbital, oral loading, seizures, acute symptomatic seizure