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## Therapeutic drug monitoring of antiepileptic drugs in BPKIHS, Dharan

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**Background & Objectives:** Epilepsy is the second most common neurological disorder. Phenytoin, Carbamazepine and Lamotrigine are regularly prescribed. The success of antiepileptic therapy depends on careful dosage titration based on desired patient response and therapeutic drug monitoring (TDM). The objectives of the study were to see the socio-demographic profile of epileptic patients on Phenytoin, Carbamazepine and Lamotrigine and to categorize epileptic patients on Phenytoin, Carbamazepine and above-therapeutic.

**Materials & Methodology:** It was observational, cross sectional study performed in BPKIHS. Blood samples was collected, immediately centrifuged, separated plasma and stored at -20 oC. Later it was vortexed and centrifuged at room temperature. Suitable extractive solvent was used for extraction of the selected drugs from plasma, organic layer aspirated and evaporated to dryness in hot water bath maintained at 400 oC using gentle steam of nitrogen. Extracted residue was reconstituted in mobile phase and injected into previously validated and calibrated HPLC system for particular drug. Data collected were entered in Excel sheet and analyzed with IBM SPSS software. Ethical clearance was obtained from Institutional Review Committee (IRC) of BPKIHS.

**Results:** Among 42 selected patients, Male: Female ratio was 4:3; most of the patients were of age group 15-45. Most were students from Sunsari district, seizure started at birth in 23.8%, most seizures were idiopathic and GTCS was the most common diagnosis made. Phenytoin was the most commonly used drug (50%) followed by Carbamazepine (40%) and Lamotrigine (10%). Phenytoin was subtherapeutic in 28.6%, therapeutic in 71.4% and above-therapeutic in none. Carbamazepine was subtherapeutic in 13.8%, therapeutic in 82.4% and above-therapeutic in 11.8%. Lamotrigine was subtherapeutic in 50% and therapeutic in 50% cases.

Conclusion: TDM was therapeutic in 73.8%, subtherapeutic in 21.4% and above-therapeutic in 4.8%.

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