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Medication conciliation to prevent epilepsy crisis and adverse drug reactions during pregnancy: An emergency case report

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Abstract

Background: Medication reconciliation is a pharmaceutical care practice to prevent drug-related problems during pharmacotherapy.

Case: A 16-year-old woman with a 4-year history of epilepsy was admitted to the emergency care unit following two recent seizures episodes with acute headache. The patient was treated with lamotrigine 25 mg plus carbamazepine 200 mg twice daily but is now breastfeeding at 22 days postpartum. A single dose of diazepam 10 mg plus phenobarbital 100 mg once daily were added in order to control seizures. The changes in the response to treatment may reflect changes in pharmacokinetics or presence of drug interaction during pregnancy. It is also well known that phenobarbital can induce drug metabolism and accelerate drug elimination.

Conclusion: In such cases, medication reconciliation is essential in order to optimise response to medication and to prevent drug-related problems.

Keywords: Drug interaction; Medication reconciliation; Pharmaceutical care; Women´s health.

Teaching Points: Medication conciliation reduces drug interaction; Relevance of pharmaceutical care during pregnancy; Promotion of pregnancy healthcare.

Introduction

Epilepsy is a brain disorder that predisposes patient to seizures episodes. The diagnosis is based on clinical symptoms, electroencephalogram and other imaging exams [1-3]. Carbamazepine (CBZ) and Lamotrignine (LTG) are highly effective antiepileptic drugs used to treat seizure disorders. Its pharmacological activity involves the blockage of sodium-dependent depolarization and inhibition of spinal cord and cortex [4,5].

Studies have demonstrated that changes in the LTG pharmacokinetics during pregnancy of epileptic patients [6,7]. Plasma concentration of Lamotrigine is particularly affected by changes in clearance during pregnancy [8,9]. Medication reconciliation is a pharmaceutical care practice consisted of collecting information about current medication used by patients to compare with new prescriptions in order to prevent drug-related problems during pharmacotherapy [10].

Case presentation

A 16-years-old postpartum woman was admitted at an emergency care unit after two seizures episodes even upon continued treatment with CBZ 200 mg and LTG 25 mg twice a day. The patient received intravenously 2 ml of dipyrone (metamizole) 500 mg/mL plus 2 ml of sodium hydrochloride metoclopramide 5 mg/mL. After 12 hours observation, she was discharged but seizures episodes continued in the next day.

A new prescription containing a single oral dose of Diazepam 10 mg plus Phenobarbital (PHE) 100 mg once a day was includ-

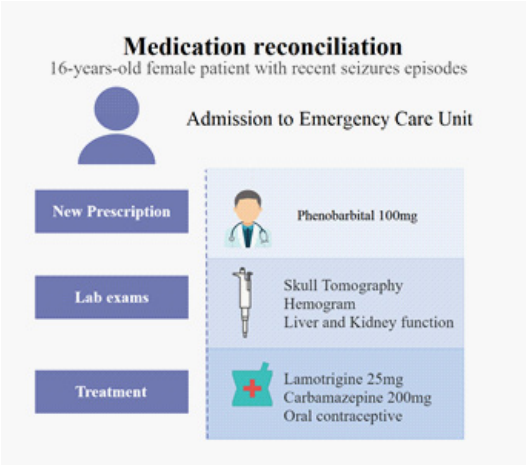

Figure 1: Flowchart of epilepsy patient treatment after admission to emergency care unit showing previous and new prescriptions.

ed in her pharmacotherapy as illustrared in Figure 1. Supplementary skull computed tomography exam and blood biomarkers analysis were recommended to exclude other brain injuries or abnormalities related to the symptoms.

The persistent seizures episodes suggest potential changes in therapy response to LTG and CBZ during pregnancy or postpartum. In order to control convulsive crisis PHE was additionally prescribed despite barbiturates has the ability to cause clinically relevant drug interactions to antiepileptic drugs [11]. As sleepiness is a side effect among individuals taking phenobarbital, the patient was oriented to sleep at least four streak hours a day and avoid bathing or ridding the baby unaccompanied.

Alanine Aminotransferase (ALT) and Aspartate Aminotransferase (AST) plasmatic determination are widely used biomarkers to assess potential hepatic dysfunction during anticonvulsivant treatment. Despite ALT and AST are not associated with changes in CYP biotransformation capacity, its determination evaluates potential liver toxicity caused by antiepileptic drugs [12]. Table 1 shows serum biomarkers determination did not reveal any significant changes in hemogram as well as liver and kidney function, except for the presence of glucose in urine (Table 1).

Computed Tomography (CT) is commonly used as a supplementary imaging exam to investigate seizure caused by intracerebral hemorrhage. Patients diagnosed with epilepsy are generally assessed by Magnetic Resonance Imaging which identifies epileptogenic lesions with structural abnormalities [13]. Figure 2 shows CT images from telencephalic parenchyma with normal attenuation coefficients, preserved cortical sulci, fissures and basal cisterns. Also, ventricular system morphology and dimensions were ascribed as normal. Intra or extra axial expansive lesions were not found as well as any abnormal parenchymal calcification (Figure 2).

Despite mothers with epilepsy are more likely to not breastfeeding, antiepileptic drugs are not contraindicated, so it was emphasized the importance of maternal milk to children development [14]. The treatment of persistent epilepsy crises requires a better investigation regarding to factors potentially related to changes in antiepileptic plasma levels. Adherence to the treatment must also be clearly confirmed once administration errors are one of the main cause of treatment failure. It is also important to emphasize that special group patients such as pregnant should be periodically examined regardless the existence of seizures crises in order to achieve more effective and safe treatment.

Table 1: Determination of clinical blood biomarkers to investigate changes in liver and kidney functions.

Determination	Quantification	Reference
Eritrocytes	4.11 mm^3	4.10 to 5.10
Leucocytes	10.45 mm^3	5.0 to 10.0 mm^3
Platelets	356.0 mm^3	140 to 400 mm^3
Urine	Glicose +	not detected
Urea	21 mg/dL	15 to 36mg/dL
Creatinine	0.70 mg/dL	0.52 to 1.04 mg/dL
Sodium	140 mmol/L	136 to 145 mmol/L
Potassium	4.1 mmol/L	-
AST	19 U/L	5 to 30 U/L
ALT	10 U/L	<35 U/L
PT	25.2 sec	25 to 32.3 sec
APT	100%, INR=1	70 to 100 %, INR<1.5
CRP	0.5 mg/dL	<1.0 mg/dL

AST: Aspartate Aminotransferase; ALT Alanine Aminotransferase; PT: Prothrombin Time; APT: Actived Prothrombin Time; CRP: C-Reactive Protein.

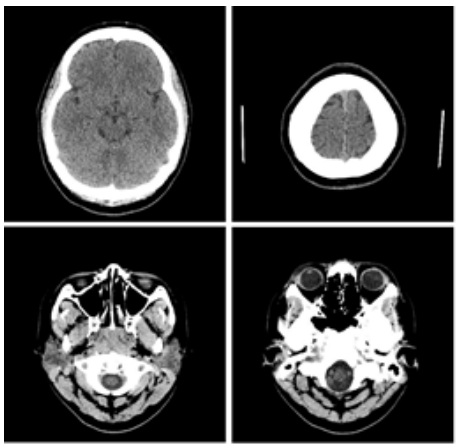

Figure 2: Axial computed tomography scan sections of the skull obtained using the multi slice technique without intravenous iodinated contrast.

Discussion

The present case report shows a puerperal patient with persistent seizure episodes likely caused by changes in therapy response to entiepleptic drugs. In addition, the use of phenobarbital brought additional risk of drug interactions with relevant clinical outcomes. These findings demonstrate maternal pharmaceutical care are fundamental to prevent adverse drug reactions in pregnancy therapy.

Declarations

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Consent to publish: All authors have agreed with manuscript submission and patient consented to publication.

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