

## Telogen Effluvium Caused by Magnesium Valproate and Lamotrigine

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Accepted June 7, 2004.

Sir,

Drug-related hair loss is not always easy to diagnose, above all because many different causal factors may be involved and the evaluation of the role played by each of these agents may be difficult. We report here two cases of telogen effluvium caused by either of two anti-epileptic and mood-stabilizing drugs, magnesium valproate and lamotrigine.

### CASE REPORTS

#### Case 1

A 16-year-old girl came to our department at the end of October 2001 because of a severe acute hair loss, which

had started 1.5 months before consultation. She had an epileptic encephalopathy since the age of 4 years and between 1996 and 1999 she was treated with magnesium valproate (800 mg/daily) without any side effects. Five months before the beginning of hair loss she had started a new course of magnesium valproate at the same dose. Diffuse hair thinning was more evident in the frontal and parietal regions. She reported important shedding during hair washing and the presence of many hairs on the pillow in the morning, after sleep. Her hair was thin, but otherwise normal, and a pull test showed a mean of nine hairs. Trichogram examination showed 54% anagen hairs, 4% dystrophic anagen hairs and 42% telogen hairs. Biochemical and haematological routine tests,

blood iron determination, transferrin system, blood ferritin, thyroid hormones, cortisol, adrenocorticotrophic hormone and electrolytes were all within normal limits. We informed the patient's neurologist that she was probably suffering from a magnesium valproate-induced telogen effluvium and we suggested its substitution, if possible, with an alternative drug. The patient continued her previous therapy for about 3 months without any improvement in hair loss, despite the use of topical lotions and multimineral supplementation. She started taking lamotrigine instead in February 2002. The new drug was well tolerated and effective in preventing epileptic episodes. Two months after the change of therapy hair shedding stopped, followed by a significant hair re-growth with no evident thinning.

### Case 2

A 24-year-old woman, suffering from partial epilepsy and severe mental retardation since the age of 3, came to our clinic in 2001 because of chronic hair loss, which had started 3 years earlier. The patient had taken different drugs for many years. In 1996, she used carbamazepine, ethosuccimide and sodium valproate without dermatological problems. During the same year, she gradually started a new drug, lamotrigine, and replaced sodium valproate with magnesium valproate, because of low magnesium serum levels. Due to the good clinical control of the disease, carbamazepine was stopped. In 1997 the dose of magnesium valproate was decreased to 600 mg/day and ethosuccimide was lowered, until it was stopped after a year. Lamotrigine was increased to 100 mg/day. After a few months, hair loss started. The patient continued treatment, which proved to be effective against her epilepsy, for the following 3.5 years although no improvement in hair loss was observed. From January 2002, levetiracetam 2000 mg/day was added to magnesium valproate and lamotrigine. In July 2003 no change was evident in hair loss and hair thinning.

Androgenetic alopecia was excluded on the basis of the clinical presentation and the trichogram results. In the following months no improvement was observed. The patient is now under therapy with sodium valproate, lamotrigine and levetiracetam and presents moderate baldness.

### DISCUSSION

Telogen effluvium is caused by a profuse loss of telogen hairs, acute or chronic, so evident that it arouses the anxiety of the patient or of the parents. In our first case the link between magnesium valproate intake and hair loss was evident, as discontinuation of this drug was followed by a complete resolution of hair loss.

In the second case, the patient had taken sodium valproate for about 13 years and lamotrigine for about 2 years, without hair problems. Hair loss had started a few months after the dose of lamotrigine was fixed to 100 mg/day and sodium valproate was replaced by magnesium valproate. A diagnosis of drug-induced telogen effluvium was made. It was probably due to lamotrigine, but its association with magnesium valproate cannot be ruled out as being the real causative factor. In the literature a higher risk for lamotrigine-induced cutaneous rash and for serious cutaneous reactions is reported when lamotrigine is given in association with valproate (1–3). Hair loss as a rare side effect of lamotrigine is reported in the prescriber's information, available on-line, and in the *Drug Eruption Reference Manual 2000* (4). We were nevertheless unable to find any case report of lamotrigine-induced alopecia in the literature.

The peculiar aspect of our first case was that the patient had already taken the drug for a period of 3 years, 2 years before consultation, without any dermatological problems. In the second case, hair loss started a few months after changing the lamotrigine dosage. We can therefore suspect that the patients who develop drug-induced hair loss have a predisposition for this disease, and that a particular new condition or a change in therapy is necessary to trigger the clinical manifestations.

When valproate is used at high doses, alopecia may occur in up to 28% of patients, and there is a possible correlation between the therapeutic dose and the plasma levels of valproate and side effects, such as hair loss (4–6). To prevent valproate-induced hair loss, starting therapy with a low dose and progressively increasing the dose should be considered, as this strategy seems to minimize side effects (6).

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