

# Valproic Acid–induced Hair-texture Changes in a White Woman

\*†Ingeborg Wilting, ‡Jan H. M. van Laarhoven, §Ingrid F. de Koning-Verest,  
and †||Antoine C. G. Egberts

\*Department of Clinical Pharmacy, TweeSteden Hospital and St. Elisabeth Hospital, Tilburg; †Utrecht University, Faculty of Science, Utrecht Institute for Pharmaceutical Sciences, Division of Pharmacoepidemiology & Pharmacotherapy, Utrecht; ‡Department of Psychiatry, St. Elisabeth Hospital, and §Public Pharmacy de Blaak, Tilburg; || Department of Clinical Pharmacy, Utrecht University Medical Center, Utrecht, The Netherlands

We describe a 47-year-old white female patient experiencing several hair-texture changes during treatment with valproic acid (VPA). Curling of the hair was the most pro-

found hair-texture change in our patient; unlike thinning of the hair, it was shown to be reversible.

## CASE REPORT

VPA is a simple molecule with a variety of pharmacologic effects that is widely used in the treatment of epilepsy as well as for the treatment of bipolar disorders (Peterson and Naunton, 2005). Well-known side effects include gastrointestinal complaints, weight gain, liver dysfunction, thrombocytopenia, and alopecia.

Accepted September 6, 2006.

Address correspondence and reprint requests to Ms. I. Wilting at Utrecht University, Faculty of Science, Utrecht Institute for Pharmaceutical Sciences, Division of Pharmacoepidemiology & Pharmacotherapy, P.O. Box 80 082, 3508 TB Utrecht, The Netherlands. E-mail: I.Wilting@pharm.uu.nl

doi: 10.1111/j.1528-1167.2006.00933.x

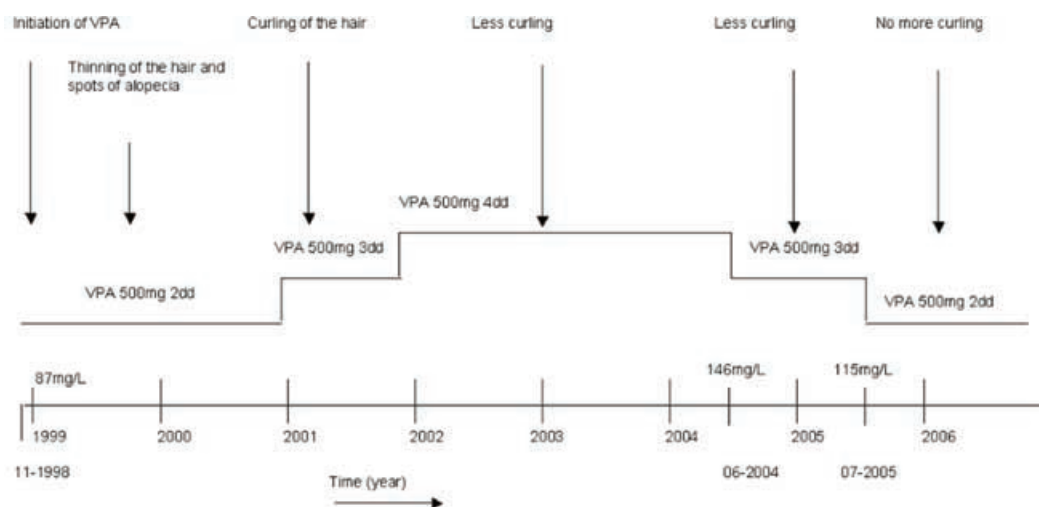


FIG. 1. Hair-texture changes during treatment with valproic acid.

We describe a 47-year-old white female patient in whom various hair-texture changes developed, probably related to the use of VPA (Fig. 1).

In 2006, all of the curliness had disappeared, but her hair remained thin. Our patient was quite satisfied with the disappearance of the curls, because she had not been too fond of the curling effect of VPA. Besides dyeing her hair, which she had been doing long before the initiation of the observed hair-texture effects, our patient had never had any perming of the hair performed.

### DISCUSSION

VPA has been reported to have several effects on hair growth, including alopecia, thinning of the hair, and hair-color changes (Herranz et al., 1981; Bublin and Thompson, 1992). The prevalence of VPA-induced hair-texture changes was reported to be 11% in a study on 284 patients (Covanis et al., 1982). Changes consisted of temporary thinning followed by regrowth, curliness or waving without thinning, and initial thinning followed by waviness. In another study on 250 patients, five (2%) patients were noticed to have developed curliness of the hair (Jeavons et al., 1977). The effects on hair did not seem to differ across gender. The effects occurred usually after 3 to 6 months of treatment. In some patients, the effects on hair texture were reported to be transient, as in our patient with respect to the curling effects, whereas in others, the observed effects persisted, as in our patient with respect to the thinning of her hair. In our patient, changes in hair color related to the use of VPA could not have been detected because she had been dyeing her hair for a very long time, far before initiation of VPA. In our patient, curling of the hair was the most profound hair-texture change, which has, besides the previously mentioned evidence, been described in case reports (Gupta, 1988; Fisher-Steenvoorden and Stravens, 1996).

The observed transient perming effect of VPA in our patient has, to our knowledge, never been observed before.

The mechanism by which VPA induces effects on hair remains to be elucidated. Effects of chelating of metals as well as inhibition of metallic enzymes that are essential to hair growth and keratinization have been suggested (Okazaki et al., 1992). One study reported changes in copper, zinc, and magnesium quantity in the hair of patients treated with AEDs (carbamazepine, diphenylhydantoin, phenobarbital, and VPA) for epilepsy compared with healthy control and schizophrenic patients. The reported changes included a decreased copper and a decreased zinc concentration of the hair in male patients and a decreased magnesium concentration in hair of female patients. No AED in particular could, however, be implicated, based on the results from this study (Suzuki et al., 1992).

Physicians must be aware of the effect of VPA on hair texture, so that they can inform their patients on its possible effects on appearance.

### REFERENCES

- Bublin JG, Thompson DF. (1992) Drug-induced hair colour changes. *Journal of Clinical Pharmacy and Therapeutics* 17:297-302.
- Covanis A, Gupta AK, Jeavons PM. (1982) Sodium valproate: monotherapy and polytherapy. *Epilepsia* 23:693-720.
- Fisher-Steenvoorden MGJ, Stravens LCM. (1996) Verandering van haar bij gebruik van valproïnezuur. *Pharmaceutisch Weekblad* 7:44.
- Gupta AK. (1988) "Perming" effects associated with chronic valproate therapy. *British Journal of Clinical Practice* 42:75-77.
- Herranz JL, Arteaga R, Armijo JA. (1981) Change in hair colour induced by valproic acid. *Developmental Medicine and Child Neurology* 23:386-387.
- Jeavons PM, Clark JE, Harding GF. (1977) Valproate and curly hair. *Lancet* 1:359.
- Okazaki K, Tsukida S, Morikawa F. (1976) Hair colour changes during hair growth cycle in C3H-strain mice. *Biology and Diseases of the Hair* 6:489-503.
- Peterson GM, Naunton M. (2005) Valproate: a simple chemical with so much to offer. *Journal of Clinical Pharmacy and Therapeutics* 30:417-421.
- Suzuki T, Koizumi J, Moroji T, Shiraishi H, Hori T, Baba A, Kawai N, Tada K. (1992) Effects of long-term anticonvulsant therapy on copper, zinc, and magnesium in hair and serum of epileptics. *Biological Psychiatry* 31:571-581.