Frequency of Sodium Valproate-Induced Hair Loss and Curly Hair

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ABSTRACT
Sodium valproate has been widely used by man as an antiepileptic drug. Hair loss and curly hair is a rare side effect of sodium valproate. We have conducted a prospective clinical study in the Department of Neurology in Shafa Hospital, Kerman, Iran for ten years (1994-2004). All 211 epileptic patients in our study were given sodium valproate as a single drug treatment. During the course of therapy, all patients were strictly monitored every 3 months. Six cases (3.5% of valproate user population) of hair loss and curling of hair were found between sodium valproate users. Three cases were female and three were male. This side effect observed at least 3 months after its first initial drug therapy. The estimated frequency of curly hair along with hair loss in our study is lower than previously-reported frequencies (6-12%).

Keywords: Curly hair, Sodium valproate, Epilepsy

Epilepsy is a common, chronic, and often disabling condition, and effective treatment often requires long-time pharmacotherapy [1, 2]. Sodium valproate is very effective against absence seizures, but it’s not the drug of choice. It is preferred in the patient with concomitant generalized tonic-clonic attacks. Valproate is unique in its ability to control certain types of myoclonic seizures; in some cases the effect is very dramatic. The drug is effective in generalized tonic-clonic seizures, especially those that are primarily generalized. A few patients with atonic attacks may also respond, some evidence suggests that the drug is effective in partial seizures [3].

The clinical utility of the drug may be compromised by its adverse effects such as tremor, weight gain, hair loss and gastrointestinal disturbances like nausea, vomiting, abdominal pain and heart burn. But the mean highlight to be tackle in this article is hair loss and curly hair as a side effect of sodium valproate [4-19]. Curly hair associated with hair loss is uncommon side effect of sodium valproate. Due to its unusual report, a very few studies have been conducted. However, a review of reports published over 30 years revealed 643 cases that developed valproate-associated hair loss [15]. This study aims to evaluate the frequency of hair loss in epileptic patients using sodium valproate.

MATERIALS AND METHODS
This is a prospective clinical study on patients who used sodium valproate for 10 years in the Department of Neurology, Shafa Hospital, Kerman, Iran (1994-2004). All the 211 epileptic patients have been taking up sodium valproate as a single agent. During the course of therapy, all patients were strictly monitored every 3 months. Sodium valproate was started at lowest therapeutic dose. The dose was gradually increased to avoid some undesirable adverse effect. Appropriate dose was selected based on the lowest dose disappearing epileptic attack. All patients were examined for hair abnormality and when found, therapeutic plan was changed to another anticonvulsant drug. The term “diffuse hair loss” has been used in patients with more than 40% reduction in scalp hair.

RESULTS
Among 211 patients who received sodium valproate (enteric coated tablet), 51% were male and 49% were female (no significant difference). Patients’ mean age of epilepsy onset was 11 years old and mean age starting to receive sodium valproate was 18 years old. More than 78% of patients had experienced tonic–clonic seizures (primary or secondary). All patients received monotherapy (single drug treatment). Overall, there were 6 cases
(3.5%) of hair loss and curling of hair. Among them 127 adult life and its progressive extension over period of 69 cases were female and 3 were male. This side effect [9]. 70 could be observed 3 months after first dose of therapy. 71 It took 1-2 years before appearance of hair loss and 72 other neurological disorders rather than epilepsy. It may 73 be administered for patients with bipolar disorders [22]. 74 Curly hair in other cases. The original and normal 75 texture of hair appeared after discontinuance of sodium 76 valproate. In six cases of hair loss and curling hair, 77 patients with epilepsy. It would be interesting to com- 78 mean age was 8 years old. The types of epilepsy in 3 out 79 pare the side effects of sodium valproate in various dis- 80 orders. Also, it is interesting to see the effect of the drug 81 on animals. One study has reported sodium valproate- 82 induced hair loss in cats [23]. 83 Based on current study, sodium valproate can cause 84 hair loss and curliness but this is a reversible side effect. 85 The derangement can be observed 3 months after start- 86 ing dose or later. But in some cases it takes 1 year or 87 years before hair loss and curly hair appears. Younger 88 patient have higher incidence of hair loss and curling. 89 The original and normal texture of hair will appear after 90 discontinuance of sodium valproate.

**DISCUSSION**

Curly hair associated with hair loss is uncommon 96. Sodium valproate can be used in the treatment of 97 pregnancy. The effect is not dose related. Sodium 98 valproate can be used in the treatment of 99 epilepsy. It can be observed in cats [24]. In a comparison 100 of 74 cases of patients using sodium valproate 101 and without sodium valproate, they observed that 5 out of 102 295 patients who were using sodium valproate experienced 103 curling of hair [4]. Another incidence of hair loss and 104 curling of hair was reported in a patient who received up 105 to 3 grams sodium valproate daily for 30 months. Nine 106 months after discontinuing the drug, her hair started to 107 revert to its former straight style [8]. In a comparison 108 between sodium valproate and carbamazepine for the 109 treatment of generalized tonic-clonic seizures, Mattsson 110 and colleagues found that 12% of patients using val- 111 proate had experienced hair loss or change in texture 112 in[12]. In a recent study, hair loss has been reported in 7- 113 8% of patients receiving divalproex (a unique combina- 114 tion of equal proportions of sodium valproate and val- 115 proic acid, which dissociates in the gastrointestinal tract 116 into the active valproate ion) [18].

Based on our study, 6 out of 211 epileptic patients 120 (3.5%) experienced hair loss and curling of hair. Our 121 results indicate that the mean age of patients with hair 122 loss is lower than those do not show this side effect. 123 The patients also experienced graying and dirty appearance 124 of hair associated with alopecia. Herrans and his co- 125 worker reported discoloration of hair due to sodium 126 valproate therapy [20]. Zinc deficiency was also re- 127 ported among the patient who received a total dose of 128 50mg/kg weight daily. Very high dose and long time of 129 sodium valproate could be a causative agent for zinc 130 deficiency. In any case, there is no strong evidence to 131 correlate zinc deficiency and curling of hair to sodium 132 valproate [8]. On the other hand, we should also con- 133 sider some physiologic factors that affect the patients. 134 Many drugs can cause hair loss but acquired temporary 135 curly hair due to sodium valproate is a rare finding 136 [14]. Compounds containing thallium, lithium and anti- 137 coagulants can induce hair loss. Some dermatologic 138 disorders such as transient rashes and stomatitis can be 139 observed as well [14]. One case of generalized morphe- 140 a has also been reported [5].

Kinking of the scalp hair is probably synonymous 142 with the whisker hair that has been reported in some 143 cases [21]. Also, it may be confused with the woolly scalp 144 nevus, but acquired progression of kinky scalp hair is 145 clinically different based on its onset in adolescence or 146 puberty. The derangement can be observed 3 months after start- 147 ing dose or later. But in some cases it takes 1 year or 2 148 years before hair loss and curly hair appears. Younger 149 patients with epilepsy. It would be interesting to com- 150 mean age was 8 years old. The types of epilepsy in 3 out 151 pare the side effects of sodium valproate in various dis- 152 orders. Also, it is interesting to see the effect of the drug 153 on animals. One study has reported sodium valproate- 154 induced hair loss in cats [23].

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