Olanzapine Induced Hair Loss – A Case Series

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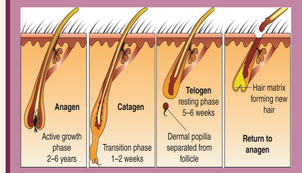
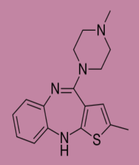
Abstract:

Several psychotropic medications have been implicated in hair loss—most commonly, valproic acid and lithium. The reported dermatological side effects associated with antipsychotic agents are rash, pruritus, photosensitivity, skin pigmentation, fixed drug eruptions, and alopecia (1,2,3). However, the number of studies which report atypical antipsychotic induced alopecia is quite limited to a few case reports. Olanzapine is an atypical antipsychotic and has been widely used in the treatment of psychosis and mood disorders. Although it is generally well tolerated, it has been associated with the adverse effect of metabolic syndrome. We present a case series in which several adult female patients reported hair loss following administration of olanzapine which resolved after cessation or decrease of dosage of the drug.

Hair Growth Cycle



Olanzapine Molecule



Causes of alopecia:

- Hypothyroidism
- Trichotillomania
- Drug induced (valproate, lithium, chemotherapy)
- Hormonal changes
- Radiation therapy to head
- Stress
- Hair treatment

Case 1

Ms. A, 23 year old single female, was brought to the outpatient department with a total duration of psychotic illness of two years with current exacerbation of two months with complaints of difficulty in initiating and maintaining sleep, neglect of personal hygiene, wandering tendency, remaining preoccupied, and decreased social interaction. She was observed to be responding to internal stimuli. She had a similar exacerbation two years ago which lasted for three months and was treated with risperidone 6 mg in divided doses with partial response, but she was non-compliant with medication later. On physical examination, she had mild pallor, and no other abnormal findings were noted. An ICD-10 diagnosis of Undifferentiated Schizophrenia with anaemia was made, and she was hospitalised.

Laboratory testing revealed Hemoglobin-10 gm%, total WBC count-7300 cells/cu.mm, differential count: N/L/E/M/B-52/38/5/4/1, FBSL-102mg%, PPBSL-110 mg%. Liver, renal and thyroid function tests were within normal limits. A baseline electrocardiogram (ECG) was reported as normal. An abdominal and pelvic ultrasound did not reveal any abnormal findings. She was initiated on treatment with olanzapine 10 mg at bedtime along with iron and folic acid supplements. The dose of olanzapine was gradually increased to 20 mg/ day. She started communicating and divulged feeling scared as she thought somebody wanted to harm her.

She revealed hearing the voices of many people telling her what to do and what not to. In view of these symptoms and partial response, electroconvulsive therapy (ECT) was considered to augment the effect of oral medications.

She was given 4 treatments of ECT, and the dose of olanzapine was further increased to 25 mg/ day. She showed improvement in the form of resolution of psychiatric symptoms. She did not develop extrapyramidal adverse effects and was discharged from the hospital. After two months of initiation of treatment with olanzapine, she reported loss of scalp hair. There were no dermatological lesions on the scalp on examination. The exact quantity of hair loss was not measured but roughly estimated to be a handful per day. The dose of olanzapine was decreased to 20 mg, and she was initiated on treatment with B-complex vitamins along with zinc supplements. At follow up after a month, she reported a decrease in hair loss and was asymptomatic.

Case 2

An 18-year-old adolescent female was brought to the hospital with a continuous illness of one year duration with an exacerbation for one month with history of disturbed sleep, refusing to eat food, increased irritability without provocation, and aggressive and suspicious behaviour. She also neglected her personal hygiene. On mental status examination, she had persecutory thought content along with auditory hallucinations. An ICD-10 diagnosis of Paranoid schizophrenia was made, and she was hospitalised.

Her symptoms remained under good control for a period of 6 months with treatment with aripiprazole 20 mg at bedtime. She had discontinued divalproex sodium 500 mg at bedtime and trihexyphenidyl 2 mg every other day 1 month prior to her current admission. She was restarted on treatment with aripiprazole 15 mg at bedtime along with lorazepam 4 mg in three divided doses. She continued to be restless and aggressive on the hospital unit, therefore these medications were stopped, and she was transitioned to olanzapine 10 mg intramuscularly every 12 hours for 2 days. She became less agitated and agreed to take oral medications. She was initiated on olanzapine 10 mg at bedtime and was gradually increased to 20 mg with resulting symptomatic improvement. All blood investigations including thyroid function tests and computed tomography scan of the brain were within normal limits. She and her family were warned about the risk of metabolic syndrome particularly in consideration of her young age. They opted to continue olanzapine. Within 2 weeks of initiating treatment with olanzapine, she complained of scalp hair loss which was noticed while combing and bathing. Due to this concern, olanzapine was cross titrated to aripiprazole over next two weeks. She was also started on B-complex vitamins and zinc supplements. After three weeks of stopping olanzapine, she reported a decrease in hair loss.

Case 3

A 19 year old female was brought to the out-patient department with a history of sleep disturbance, pressured speech, verbal response to internal stimuli, and aggressive behavior for five days. She expressed fear that some people wanted to harm her father. She said that her neighbours would talk about her and harm her by doing black magic. She was not attentive to her personal hygiene. There was no history suggestive of thyroid disturbance. She had normal developmental milestones and a well-adjusted premorbid personality.

On mental status examination, she was uncooperative, had dishevelled appearance, had delusions of persecution, and her judgment was impaired. An ICD-10 diagnosis of Acute and transient psychotic disorder was made, and she was hospitalized. Her behavior was controlled with intramuscular haloperidol 5 mg and promethazine 25 mg.

All laboratory testing was within normal limits. ECG, chest X-ray, fundus examination and CT scan of the brain were normal.

She continued to be restless and agitated. Therefore, she was initiated on treatment with olanzapine 10mg intramuscular every twelve hours which was continued for the next three days. She was switched over to olanzapine10mg twice a day along with lorazepam 3mg in divided doses. The dose of olanzapine was gradually increased to 30 mg/day. She improved and was discharged.. At follow-up after two months of initiation of treatment with olanzapine, she complained of hair loss. The dose of olanzapine was decreased to 15 mg, and she was initiated on treatment with B-complex vitamins with zinc supplements. One month later, she reported a decrease in hair loss and was asymptomatic.

Case 4

A 21 year old female presented to the outpatient department with an illness of total duration of six years with current exacerbation of three weeks with a history of feeling of persistent sadness, decreased appetite, and suicidal thoughts. She was already taking olanzapine 20mg/day. She had been doing well with treatment until three weeks ago when her family members noted that she would remain preoccupied and had a decreased interest in interacting with them, which was a significant change in her behavior.

She expressed pervasively feeling sad, hopeless, helpless, and worthless. She also felt like ending her life, however, no suicidal attempt was noted. She started neglecting self- care and would refuse to eat food. On evaluation, she denied perceptual disturbances. Past history revealed episodes of catatonia and psychosis. There was no history suggestive of thyroid disturbance, and trichotillomania was ruled out. Laboratory investigation reports including thyroid function tests, chest X-ray, and fundus examination were normal.

She was diagnosed with post-schizophrenic depression and was initiated on treatment with mirtazapine 15 mg/day, and her dose of olanzapine was increased to 30 mg/day. She also received 3 treatments of ECT due to the presence of active suicidal thoughts, and she improved significantly after these treatments. About 3 weeks following the increase in the dose of olanzapine, she reported loss of scalp hair. She was initiated on treatment with B-complex vitamins with zinc supplements, and the dose of olanzapine was decreased to 15 mg/day. At next follow up after 4 weeks, she reported a decrease in hair loss.

Discussion:

Drug-induced alopecia involves an interruption of hair growth when the hair follicles prematurely enter the telagen (resting) phase (2,5). This spontaneous, diffuse hair loss generally occurs within three months of initiating therapy, and it is usually reversible upon discontinuation of the offending drug (2,5). While the mechanism is not known, some have suggested that these medications may chelate zinc and selenium which are believed to be necessary for hair growth. Other options for managing this side effect include waiting for accommodation to occur, or the use of zinc and selenium (6,7). The exact cellular mechanism of olanzapine and other psychotropic drugs induced alopecia is still unclear (8). Whether these patients are predisposed to this adverse effect is not known. Nonetheless, alopecia is important to treat because it is often a distressing and embarrassing adverse effect from medication and can lead to medication noncompliance.

Conclusion:

It is possible that these patients could have been predisposed to the development of hair loss, however, we ruled out common causes of hair loss such as hypothyroidism, trichotillomania, and dermatological disorders. Although we did not measure the serum levels of olanzapine, in order to correlate the hair loss with the dose of olanzapine, we did observe that hair loss increased with the increase in dosage of olanzapine, usually above 15 to 20mg/day. The hair loss was noticed within four to six weeks of initiation or increase in dosage of olanzapine. An interesting observation was that cessation or reduction of dosages to under 20mg/day of olanzapine resulted in a reduction of hair loss initially followed by complete stoppage within four weeks, suggesting that drug induced alopecia is reversible. Also, consumption of vitamin B complex with zinc supplements resulted in a reduction in the hair loss. It may be hypothesised that zinc has a potential role in the prevention of hair loss.

This case series is a significant observation but is not conclusive and requires further randomised trials to validate the results. These findings suggest that clinicians should routinely screen for the side effect of hair loss in patients receiving psychotropic agents like olanzapine as medication-induced alopecia can result in non-adherence to treatment.

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