A 43-year-old male patient was hospitalized with complaints of manic and psychotic symptoms. He had no history of systemic diseases and brain injury. He had two previous psychiatric visits, suspecting substance-induced disorder. His family stated his mental condition had been normal without taking any medication in recent five years. This time, he presented himself with manic symptoms of decreased need of sleep, increased sexual drive, and hazardous driving five days before he was hospitalized. He subsequently developed psychotic symptoms as persecutory delusion, delusion of being possessed, and visual hallucinations. At the emergency department, his mental status examination showed elated mood, labile affect, and loosed associations. He denied illegal substance use, and his urine drug screen was negative in finding. After admission, he received olanzapine 15 mg daily and his symptoms were resolved one week afterwards.

During hospitalization, we found that he has drunk three bottles of cough syrup every day for three years, recently increased the amount to six bottles daily on average. We checked the syrup’s ingredient, stating the content of *ma huang*. The syrup has totally 2,520 mg *ma huang* per bottle. Our patient drank six bottles per day, equivalent of 15,120 mg of *ma huang* per day. The large amount intake may contribute to cause his psychiatric symptoms. Before the discharge, we educated him the proper use of the syrup. He showed normal mental status in the clinic follow-ups in one week and a month.

Comment

Cough syrup addiction has gained media attention in recent years. In our reported case, the patient took a cough syrup with *ma huang*, a Chinese herb containing ephedrine. Since 100 mg of *ma huang* roughly has 2 mg of ephedrine alkaloids [1], our patient took nearly 300 mg ephedrine alkaloids daily. The Food and Drug Administration of the United States of America limited the amount of ephedrine to 24 mg/day in 1997 [2], but the toxic dose is not available in the literature. The psychiatric symptoms related to *ma huang* are believed to be from ephedrine’s action on both the norepinephrine and dopamine transporters in the CNS [3].

In a review article [4], Margaret el al. reported 57 patients with ephedrine-induced psychiatric symptoms. Most of them (60%) have been using ephedrine for more than two months and two-thirds of them have pre-existing psychiatric conditions and/or illicit substances use. The most common ephedrine-induced psychiatric symptom is psychotic symptoms (more than 50%), followed by depression, mania, and agitation. Our patient had drunk ephedrine-containing syrup for more than three years, and he had past history of substance-induced disorder. His recent increased consumption of cough syrup may have caused his manic and psychotic symptoms with an additional bigger extra dose on top of chronic use of cough syrup.
Normally, when a patient’s clinical presentation or disease duration is atypical, we pay special attention to his substance and medication history, but we may often neglect the use of non-prescription or over-the-counter medication. This is especially important in Asia countries where the use of Chinese herbal medicine is common and readily available without prescription. In summary, we report this case to remind clinicians that the acute extra bigger dose on top of chronic abuse of ma huang by cough syrup consumption can induce ephedrine-related manic-like symptoms and psychoses resembling schizophrenia. (The authors declare no potential conflict of interest in reporting this clinical case.)

References


