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LETTER TO THE EDITOR

RLS relieved by tobacco chewing: paradoxical role of nicotine

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Dear Editor,

Restless leg syndrome (RLS) is a sensorimotor disorder manifested as an urge to move legs which is alleviated by movement [1, 2]. It is more common in females, elderly and is a common cause of sleep disturbance [1]. The pathogenesis of RLS is unclear; however, the alleviation of RLS with dopaminergic drugs implicates D2 receptors [2]. Caffeine, nicotine and chocolate may aggravate RLS [2]. We are presenting a case who reported paradoxical relief in RLS after chewing tobacco. To best of our knowledge only one such case has been reported earlier [3].

A 70-year-old lady presented with sleep disturbance since 1 year. She revealed feeling restlessness in lower limbs at bed-time that interfered with either falling asleep or caused terminal insomnia. She would often hit one leg with the other to get relief and on occasions she would tie a piece of cloth to get relief. Abolition of symptoms was observed at 7.00 a.m. and she could get 3–4 h sleep thereafter. She felt tired and disinterested during day. Symptoms were gradually progressive.

The lady had been taking tobacco mixed with betel-leaf for many years without any apparent effect on leg symptoms. However, on few occasions she chewed tobacco-leaves without betel-leaves during nocturnal awakenings and found a decrement in her leg symptoms. Since then, she started using it as a therapy to relieve her RLS. Hematological investigations revealed presence of iron deficiency anemia (Hemoglobin = 7.1 g/dl; serum TIBC = 517 μg/dl; serum ferritin = 24 ng/ml). Past medical or psychiatric history was non-contributory. Family history was nonremarkable.

A clinical diagnosis of RLS was made. Two issues need special mention in this case, first, immediate relief (although partial but noticeable) in RLS by tobacco chewing and second, absence of effect while chewing tobacco with betel-leaf. Smoking, and thus nicotine is thought to relieve RLS symptoms by acting on acetylcholine receptors [3].

Interaction between nicotine and dopamine is known for a long time. Smoking has been reported to relieve symptoms of Parkinson's disease during drug off period [4]. Not only smoking, but also the nicotine chewing gum has been found to increase dopamine level in striatum [5]. However, nicotine gum has less pronounced effect on symptoms of PD as compared to smoking [4]. Since, PD and RLS both respond to dopamine agonsits, it seems possible that beneficial effect of nicotine observed in PD would be seen in RLS also. In a study, RLS patients were found to have higher prevalence of nocturnal smoking; however, it was attributed to presence of psychopathology instead of therapeutic benefit [6].

However, total amelioration of symptoms of RLS was not attained with tobacco in this case and a number of factors might be responsible for it. First, it might be related to amount of tobacco since, tobacco in betel-leaf (which was smaller in quantity) was unable to produce relief, while tobacco chewed directly (larger quantity) had pronounced effect; second, co-morbid iron deficiency might play a role; third, smoking and tobacco chewing might produce different effects on brain dopamine [4]. Better relief reported in earlier case could be attributed to reasons mentioned above [3].

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Tobacco is known to provide relief in anxiety and depression and these conditions are frequently co-morbid with RLS [7]. However, these conditions were ruled out by history and clinical examination in the present case.

In conclusion, nicotine may provide relief in some patients. There is a need to find out correlates of this therapeutic response through well-designed studies.

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