INTRODUCTION

Opioids and amphetamine-like stimulants (ATS) exert their effect by altering natural dopamine neurotransmission in the brain to achieve the ultimate goal of an extracellular hyper-dopamine state (1). Dopamine actions are mediated by specific G proteins coupled receptors of two distinct families; D1-like receptor subtypes (D1 and D5) and the D2-like receptor subtypes (D2, D3, and D4) (2). Evidence has suggested that peripheral dopamine systems reflect the central dopamine system's activity and pathology, especially in neuropsychiatric diseases (3). It has been reported that peripheral blood lymphocytes (PBL) express dopamine in peripheral systems.

OBJECTIVE

To compare dopamine receptors DRD4 and DRD5 mRNA expression in peripheral blood lymphocytes among co-occurring opioid and Amphetamine-like stimulants (COATS) use disorder undergoing methadone maintenance therapy and healthy control.

DISCUSSION

1. It has been reported that central neurological disorders such as in schizophrenia(4) and Parkinson diseases(5) are characterized by dysfunction of central dopaminergic neurotransmission which also concurrently caused PBL dopaminergic systems dysfunction.

2. In contrast to previous study (6), the findings of the present study demonstrated significant reduction of the dopamine D4 receptor's mRNA expression among COATS patients undergoing MMT. It seems possible that the differences in these results are due to different effects of the abused drug as well as neurobiological mechanisms of pathophysiology.

3. The dopamine D5 receptor's mRNA expression in COATS patients undergoing MMT showed there is no significant difference which consistent with that of (6). The possible explanation of our findings is that the effect of MMT may assist in normalizing the dopamine D5 expression.

CONCLUSION

In conclusion, COATS patients undergoing MMT may experience different effects on the mRNA expression of peripheral DRD4 and DRD5. The present study suggests different mechanisms of abused drugs on the dopamine D4 receptor's mRNA expression in PBLs in COATS patients.

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