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Methylphenidate may be related to muscle pain and stiffness: two case reports

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ABSTRACT

This report raises attention to a possible underrecognized and underreported muscular symptoms, such as pain, stiffness and cramps associated with the use of psychostimulants and that were observed in two adult patients, one male and one female, with improvement of the complaints after withdrawal of the medication.

Indexing terms: muscle pain; methylphenidate; psychostimulants.

Muscle pain is a widespread complaint and sometimes its exact aetiology or causal factor is hard to pinpoint. Nonetheless, recognition of possible cause or causes may help the health practitioner on proper guidance and care of such patients.

I wish to present two cases of muscle complaints associated with the use of methylphenidate, a commonly used psychostimulant not only for on label indications, such as attention deficit disorder and behaviour disorders in children, but also for off label uses such as improvement of concentration for studying or of performance by athletes [1].

First subject is a woman, health practitioner, forty years-old, nulliparous, normal-weight (BMI of 19.7 kg/m²), regular athlete – daily aerobic and anaerobic training, with complaints of painful muscular cramps that occurred in random muscles, sometimes in the lumbar region, dorsal region or limbs. They were usually asymmetric and lasted for hours, impairing sleep when occurring at night. She did not have any relevant comorbidities nor was taking any other medications at the time of consultation. She had been using *off label* oral methylphenidate 10 mg per day as a booster to performance and attention.

Second case is a male patient, 38 years old, health practitioner, overweight (BMI of 28.4 kg/m²), otherwise healthy, performing mild to aerobic and anaerobic training two to three times a week - complaining of cervicobrachial pain and stiffness (worse on the right side) that preciously existed and was attributed to cervical herniation of C6 and C7 and also for bad posture. Nonetheless, the pain was usually tolerable - visual pain scale up to 3-4/10 on peak days but had markedly increased – up to 10/10 since he begun using, sporadically, around six months before evaluation, oral methylphenidate in doses ranging from 10 to 30 mg per day, due to residual somnolence from a mild sleep apnoea, managed with avoidance of supine position. Before methylphenidate he had already been using oral vortioxetine in a steady 20 mg for anxiety and oral rabeprazole 10 mg for gastroesophageal reflux.

Both patients did not present atrophies, numbness or weaknesses at the examination, and tendinous reflexes were normal, and in both the soreness was much more frequent in the first hours after taking methylphenidate than on any other time, not even after a bodybuilding session.

Mei P. Methylphenidate may be related to muscle pain and stiffness: two case reports. InterAm J Med Health. 2025;8:e20250253. http://doi.org/10.31005/iajmh.v8i.253



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How to cite this article

A nerve conduction study and electromyography of the four limbs was obtained and was normal for the woman, but not for the man. Routine laboratory tests of both, including creatine phosphokinase levels and liver tests were normal/ uncharacteristic.

The two patients were advised to abstain from methylphenidate for a month and keep a daily record of pain until the next evaluation, at the end of the period. During this period there were no significant changes in their daily routine nor in sleep. In both cases there was a marked improvement on the complaints – the female patient remained free of muscle cramps and pain and the male patient returned to previous levels of occasional cervicobrachial pain and stiffness.

After the abstinence period, they also noticed that the symptoms relapsed when they resumed the use of methylphenidate, and since then they were advised to refrain as long as they could from usage.

Muscular symptoms have previously been reported as possible adverse effects of the use of psychostimulants [2] or when being withdrawn [3]. Regarding psychostimulants, the drug datasheets from the reference medications in Brazil cite muscle cramps as a very rare event observed in the clinical trials for methylphenidate [4], and neck rigidity as a *common* adverse effect and myalgia, neck pain, dorsal pain and leg cramps as *uncommon* events of modafinil [5], while no muscular effects are acknowledged in the case of lisdexamfetamine [6].

Nonetheless, as there are other adverse events of psychostimulants that are more frequently reported, and therefore more overseen by clinicians, such as headaches, tachycardia, insomnia, agitation, among others, muscular symptoms may be in fact undervalued both by patients and health practitioners. It would be interesting to promote further and more broad investigations on the issue.

Acknowledgements

The author wishes to thank the patients for giving full consent for the report.

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Accepted: 20/12/2023 Available online: 28/6/2024