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### **ABSTRACT BOOK**

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## PD-38

### A Rare Cause of Dystonia in an Adolescent with Insulin Resistance (IR): A Case Report

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#### Introduction:

Metformin (MTF) is first line pharmacological therapy for insulin resistance (IR) used alongside healthy lifestyle modifications. Additionally, Risperidone is approved for irritability and aggression management in autism. Both medications are metabolised via the kidneys.

#### Case Presentation:

A 16-year-old boy with non-verbal autism stage 3 was treated with Risperidone 2 mg ON since 13-years-old. He has been on Sodium valproate 520 mg BD for epilepsy for the past 7 years. He has sleep disordered breathing and allergic rhinitis. He was referred to endocrine unit for Grade II obesity. Upon examination, he had grade 4 acanthosis nigricans and was post-pubertal. Anthropometry revealed weight 130.6 kg (3.19 SDS), height 169.1 cm (-0.73 SDS), BMI 45.7 kg/m<sup>2</sup> (2.96 SDS), and waist circumference 113.5 cm (2.54 SDS).

Hormonal studies showed fasting TC 4.3 mmol/l (< 5.2), TG 1.3 mmol/L (<1.7), LDL 2.9 mmol/l (< 2.6), HDL 0.8mmol/l (> 1), HbA1c 6.0 %, and serum cortisol 295.7. nmol/l. HOMA-IR was 0.7 (<2). He was diagnosed with metabolic syndrome with IR. He was treated with MTF 250mg BD at 13 years old. He developed dystonia over bilateral lower limbs during 3 months of therapy and MTF was discontinued. MTF was restarted 6 months later, and he suffered dystonia over upper limbs for another 6 months before cessation of therapy. Risperidone was changed to Quetiapine for 4 months with no clinical improvement. He was recommenced on Risperidone 2mg ON and has been on it since. He did not suffer from dystonia after MTF was stopped. Treatment with GLP-1 receptor agonist was offered to parents but were refused.

#### Conclusion

Exact pathophysiology of dystonia remains unclear but probably involves dopamine D2 receptor blockade in the striatum. Competitive inhibition for the metabolism of MTF may have increased both medications concentration, given temporal relationship of dystonia.