



CLINICAL CASE ROUNDS

Deprescribing in a Youth with an Intellectual Disability, Autism, Behavioural Problems, and Medication-Related Obesity: A Case Study

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Abstract

Vlad, not his real name, a 15 year old boy with an autism spectrum disorder and intellectual disability, was referred for psychiatric consultation due to aggression and other behavioural problems. He presented for initial psychiatric consultation on five psychotropic medications with associated severe obesity. A systematic deprescribing and cross-tapering plan was implemented, removing all five psychotropic medications (which included olanzapine and quetiapine) and introducing ziprasidone. These changes were associated with a 44.8kg weight loss with no behavioral deterioration and overall lower rates of aggression. Vlad's case may typify important deficiencies in the service system which create a context that allows for aggressive psychotropic polypharmacy without apparent concomitant increase in sophistication of behavioral management design and support, while also tolerating substantial treatment adverse effects (e.g., medication induced severe obesity) within a member of a vulnerable population (e.g., a youth with developmental disability in care). Suggestions to address some of these contextual factors are outlined.

Key Words: obesity, psychotropic medication, health services, autism, intellectual disability, ziprasidone

Résumé

Vlad, un garçon de 15 ans souffrant d'un trouble du spectre de l'autisme et d'une déficience intellectuelle, a été envoyé à une consultation psychiatrique en raison d'une agression et d'autres problèmes de comportement. Il s'est présenté à sa première consultation psychiatrique avec 5 médicaments psychotropes et une grave obésité associée. Un plan systématique de déprescription et de dégression a été mis en œuvre, éliminant les 5 médicaments psychotropes (qui incluaient de l'olanzapine et de la quétiapine) et introduisant la ziprasidone. Ces changements ont été associés à une perte de poids de 44,8 kg sans détérioration du comportement et des taux d'agression généralement plus faibles. Le cas de Vlad peut illustrer d'importantes déficiences du système des services qui créent un contexte permettant une polypharmacie psychotrope vigoureuse sans offrir d'augmentation concomitante apparente d'une prise en charge et de soutien du comportement, tout en tolérant les effets secondaires substantiels du traitement (p. ex., l'obésité grave induite par les médicaments) chez un membre de la population vulnérable (p. ex., un adolescent souffrant de déficience développementale dans les soins.) Des suggestions pour remédier à ces facteurs contextuels sont présentées.

Mots clés: obésité, médicament psychotrope, services de santé, autisme, déficience intellectuelle, ziprasidone

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Introduction

Case presentations can serve multiple functions. They can introduce a new clinical phenomenon, present a clinical controversy, identify and detail contextual factors related to a health issue, personalize a health problem through presentation of an individual (to complement approaches relying on descriptive statistics about a population with the given health problem), and illustrate aspects of a known health issues that need further attention or elaboration. In this report, a case involving known health issues (i.e., psychotropic polypharmacy and iatrogenic obesity) is presented using a knowledge translation strategy of employing the presentation of a specific individual with a health experience to elaborate on health service contextual factors that may have contributed to the health issues in this case. The case also provides an example of successful deprescribing in the child psychiatry field. Although this case presentation is not a function of implementation of formal case study methodology, its content is consistent with the aim of case study methodology to examine "... a contemporary phenomenon in its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident" (p.2, Yin, 2014). This aptly describes the frequently blurred interface between child mental health problems and the service system's responses to such problems.

The Case

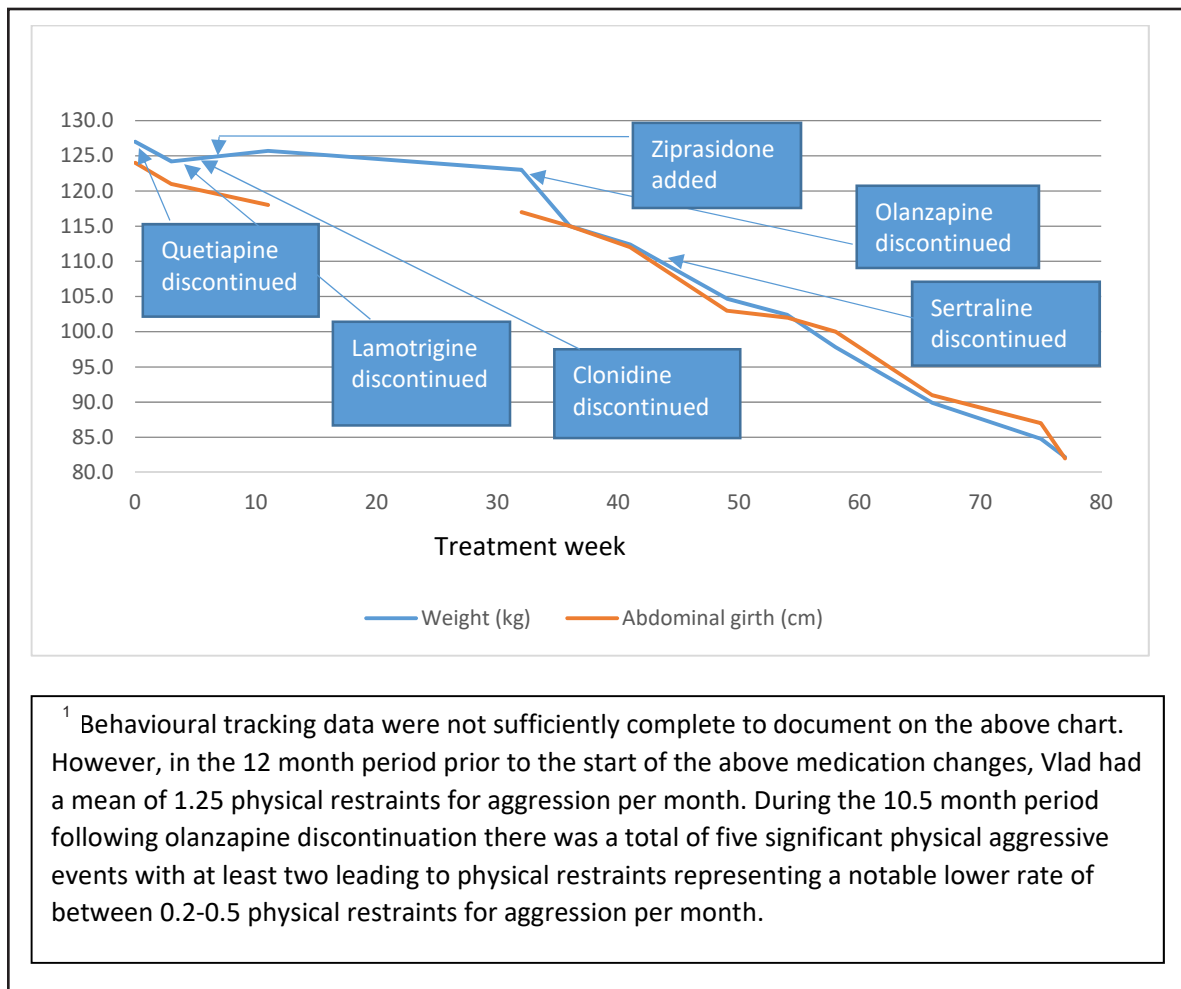
Vlad was a 15 year old boy when his family doctor referred him for psychiatric consultation for ongoing behavioural struggles despite multiple psychotropic medication trials and ongoing behavioural consultation. Related to Vlad's behavioural needs, he had been living in a specialized group home for several years. Challenges in the group home included physical aggression, property destruction and various repetitive behaviours. He attended a school specialized for children and youth with developmental disabilities and high needs. In the school setting, significant oppositional behaviours were also encountered, particularly with transitions. Vlad carried longstanding diagnoses of autism spectrum disorder and a severe intellectual disability.

At the initial psychiatric consultation, ten months after referral, Vlad was on sertraline (100mg qam), olanzapine (10mg bid), clonidine (0.1mg bid), quetiapine (50mg qhs), and lamotrigine (25 mg bid, for behaviours, not seizures). Details as to the rationale and duration of use of each of these psychotropic medications, which had all been introduced in primary care, were not available. However, physical aggression had been a major focus and this aggression had markedly escalated a year prior for unknown reasons. Four of the five medications had been listed on a pharmacy record, at various doses, for over two years, with lamotrigine having been introduced seven months prior to presentation for psychiatric consultation.

At the first psychiatric appointment, Vlad weighed 127.0kg and with a height of 178.0cm had a BMI of 40.1 kg/m² (grade 3 overweight or severe obesity using an adult classification system) (WHO Expert Committee, 1995), with an abdominal girth of 124cm. Group home staff remembered him being a lean, athletic boy when he first came into the group home years prior (BMI data not available). In addition to behavioural improvement, Vlad's guardian (a child protection worker) and group home staff agreed that weight reduction and a decrease in total psychotropic medication should also be treatment goals. Given the severity of his intellectual disability, Vlad was not able to participate in this type of decision-making.

A behavioural consultant (contracted separately to the group home and not part of the psychiatric consultation) worked with group home staff prior to, and throughout the duration of, psychiatric involvement. A number of target behaviours were tracked and specific behaviour modification strategies were employed (e.g., positive reinforcement for toileting skill development, time-out for physical aggression to staff). Medication changes, under psychiatric care, were guided by the following questions: (i) are all these medications necessary, (ii) could they be contributing to adverse effects, and, (iii) if they are needed, are they dosed optimally? Sertraline, clonidine, quetiapine and lamotrigine were weaned off without any apparent behavioural deterioration (Figure 1). Given group home staff's recollection that olanzapine use, in particular, was associated with a past reduction in Vlad's aggressive behaviour, there was particular concern when an olanzapine taper was proposed, especially given that past aggression had led to staff injury. We agreed to proceed with a medication cross-over switch to ziprasidone, also an atypical antipsychotic, but one that may be weight neutral (Bak, Fransen, Janssen, Van Os, & Drukker, 2014). Ziprasidone, however, is associated with QTc prolongation, therefore serial ECGs were obtained (Camm et al., 2012). Olanzapine was successfully weaned off and Vlad remained only on ziprasidone 40mg bid (although prn trazodone was subsequently introduced to address periodic, but prolonged, sleepless periods at night).

The severe aggressive behaviour exacerbation that Vlad had demonstrated the previous year (prior to the psychiatric consultation) did not recur, and group home staff reported overall behavioural improvement with reduction in severe tantrums and aggressive behaviour (variables they routinely tracked). Whether behavioural improvement in Vlad's case was a function of effective behavioural programming, reduction in excessive psychotropic medication, ziprasidone use, and/or other unidentified changes was not discernable. However, a subsequent attempt to taper ziprasidone was associated with an increase in physical aggression and tantrums and hence it was decided to continue on ziprasidone 40mg bid. A concurrent decrease in food "stealing" over time (potentially due to the elimination of olanzapine and/or quetiapine) may also have contributed to a decrease in

Figure 1. Vlad's weight and abdominal girth over the course of psychotropic medication changes¹

physical altercations with staff. While tracking data of target behaviours were intermittently provided by the group home staff, a copy of the complete behavioural program and documentation of a functional behavioural assessment were never received despite requests. Some inconsistencies in behavioural management between the group home and school were noted (e.g., more restrictions of the use of physical prompting for non-compliance in the school versus group home setting; avoidance of edible reinforcers at school whereas routinely used in the group home).

Between the first and last psychiatric assessment (a period of 78 weeks), Vlad experienced a 44.8kg weight loss (Figure 1). Values at his last psychiatry appointment included: (i) height: 179.5cm, (ii) weight: 82.2kg, (iii) BMI: 25.5 kg/m² (grade 1 overweight) (WHO Expert Committee, 1995), (iv) abdominal girth: 82cm. Bloodwork as per CAMESA guidelines (<http://comesaguideline.org>) was obtained at only two points during this period of psychiatric treatment given Vlad's difficulty in cooperating with blood draws (and

hence need to align it with sedation during his dental treatment). The only bloodwork abnormality early in the treatment course (elevated prolactin) resolved by follow-up.

Discussion

Advocating for high quality behavioural modification interventions

It is well established that behavioural modification interventions should typically be "first line" for behavioural challenges (including aggression) in persons with autism and intellectual disabilities (Healy, Lydon, & Murray, 2014), while ensuring potentially modifiable medical and environmental contributors are addressed. Although the first line role of behavioural modification is often emphasized, juxtaposed with warnings about excessive reliance on, and use of, psychotropic medication, there is insufficient attention paid to the lack of timely access to high quality behavioural interventions. This likely contributes to physicians wanting,

or being pushed, to “do something” (i.e., medicate) while waiting for access to quality behavioural interventions, as well as the provision of other services.

Physicians, while not typically involved in the provision of behavioural programming, should, however, assert an important advocacy role, including systematically flagging when patients do not have access to first line evidence-based interventions. An additional challenge, however, is lack of physician awareness (including psychiatrists) of what constitutes evidence-based behavioural interventions. Assuming that *any* active behavioural interventions are adequate, when they may not be, may undermine the press for needed advocacy. In Vlad’s case, inconsistency in behavioural approaches across settings and the lack of documented evidence of a functional behavioural assessment informing treatment suggested potential gaps in the adequacy of this aspect of his care. While Vlad had access to multiple psychotropic medications over time, the intensity and sophistication of behavioral modification implementation was much less certain. This may relate, in part, to the challenge of accurately and succinctly documenting behavioral intervention delivery over time, in contrast to medication delivery documentation, which increases the challenge to rigorously scrutinize the former.

Use of antipsychotics and the challenge of weight gain

While behavioural interventions are first line, there can still be an important role for psychotropic medication for emotional and behavioural problems in persons with developmental disabilities, including antipsychotic medication. The American Academy of Child and Adolescent Psychiatry has prepared an informative summary, useful for both caregivers and physicians, addressing use of psychotropic medications in persons with autism: (https://www.aacap.org/App_Themes/AACAP/Docs/resource_centers/autism/Autism_Spectrum_Disorder_Parents_Medication_Guide.pdf).

However, as with any intervention, the use of psychotropic medications requires a careful consideration of potential risks and benefits. The risks of significant weight gain and associated metabolic syndrome are major concerns with several antipsychotic medications, but olanzapine is associated with some of the largest weight gains (Bak et al., 2014). Several recommendations have been suggested if antipsychotic medications are leading to excessive weight gain including (i) periodically considering whether the medication is still required, and if so, (ii) whether it can be reduced or replaced by another, less obesogenic medication, and (iii) if not able to change, consider strategies to prevent or decrease further weight gain including lifestyle changes and the use of metformin (Wu et al., 2008).

In Vlad’s case, it is likely that replacing olanzapine with ziprasidone contributed to weight reduction (Weiden,

Daniel, Simpson, & Romano, 2003), but it is important to note that ziprasidone’s use for behavioural problems in persons with developmental disabilities is off-label, and that the evidence of effectiveness of this medication for such uses is limited (Dominick, Wink, McDougale, & Erickson, 2015). In addition, ziprasidone’s greater propensity for adverse cardiac effects requires consideration, and additional monitoring (Camm et al., 2012). Furthermore, Vlad’s amount of weight loss with medication changes may be atypical (Bak et al., 2014). As quetiapine is also associated with weight gain (Bak et al., 2014), its elimination may have also contributed to Vlad’s weight loss, especially at the start of deprescribing. Elimination of other medications may not have had significant weight influence: sertraline’s impact on weight has been noted to be variable (Reekie et al., 2015), lamotrigine has been identified as weight neutral (Devinsky, Vuong, Hammer, & Barrett, 2000), and weight change is not identified among the most common adverse effects listed for clonidine (Connor, Fletcher, & Swanson, 1999).

Of note, risperidone and aripiprazole are the only antipsychotics that are US Food and Drug Administration approved for use in children and youth with autism, specifically for “irritability”, with none approved for such use by Health Canada (Elbe, Bezchlibnyk-Butler, Virani, & Procyshyn, 2015). A pharmacy record indicated that Vlad had had a previous trial of aripiprazole that had been discontinued prior to his referral. Available documentation did not indicate risperidone use, but this may have been used earlier in his life and not captured in the available pharmacy record.

Limiting polypharmacy

Although the use of antipsychotic medication is a particular focus of this case presentation, there were also concerns about extensive polypharmacy. In Vlad’s case, four psychotropic medications were discontinued without increased negative behaviours. Polypharmacy in psychiatric care, and for persons with developmental disabilities in particular, has been identified as an important concern but there does not appear to be systematic mechanisms in place in Canada to address this issue. A National Health Services initiative in the UK (<https://www.england.nhs.uk/learning-disabilities/improving-health/stomp/>) might inform Canadian policy in this regard. Deprescribing, an approach championed in geriatric medicine (Scott et al., 2015), might also inform healthcare improvement for those with developmental disabilities and psychiatry more broadly. Lessons learned from specialized oversight monitoring of psychotropic medication use among foster children in several US states might also be informative, such as their use of collegial secondary reviews, database reviews, and administrative case reviews (Mackie, Hyde, Palinkas, Niemi, & Leslie, 2017).

Additional gaps in health care

Vlad's case highlights additional healthcare concerns. For example, while prolonged wait times for specialty consultation is a common problem, whether persons with developmental disabilities might experience inequitably longer wait times should be investigated as such populations may be relegated to carved out specialized streams that may entail longer waits than might occur in integrated services (McLennan, 2018). Vlad's wait time of ten months for consultation was longer than the facility's mean mental health consultation wait time. Within that wait period, the family doctor increased the olanzapine dose, presumably as a stop gap measure.

An additional concern may be the constrained model of some specialty consultation services. Psychiatry consultations may take the form of only offering single "one-off" or short-term follow-up appointments. Although for certain problems this may be appropriate, there are other cases where this could be problematic. It is not obvious what effective one-off psychiatric consultation could have been made in Vlad's case, particularly given the need for closely monitoring and evaluating the deprescribing. Vlad may have benefitted from the prolonged period of specialty mental health care provided in this case, allowing time to (i) conduct multiple medication weaning trials and a medication substitution, (ii) evaluate the impact of these changes with multiple meetings with caregivers, and (iii) advocate for enhanced behavioural care. Such a long course of specialty treatment might be frowned upon given the pressures to shorten specialty wait times. Determining whether similar outcomes for such patients might be obtained within collaborative care models with lower use of specialty resources would be valuable and/or strategic use of multidisciplinary teams with emphasis on the delivery of effective interventions versus the presence of any one particular discipline. It is acknowledged that some of the service aspects of this particular case may be specific to the clinic arrangements in this particular urban Canadian setting and different or additional variables may arise within other jurisdictions, however, many of the service problems flagged in this case are unlikely to be unique to this one setting.

Beyond mental health specific care, there may be additional concerns regarding equitable access to, and quality of healthcare for those with developmental disabilities (Krahn, Hammond, & Turner, 2006). The possibility that some health problems (e.g., excessive weight gain related to medication) might be inappropriately tolerated in persons with developmental disabilities warrants consideration. Vlad's excessive weight gain and obesity was not identified as an issue in the referral despite this increasing his risk for cardiovascular disease and premature death (Franks et al., 2010). As obesity appears to be more prevalent in populations of children and adolescents with developmental disabilities, including autism with disruptive behavioural difficulties (Criado et al., 2018; Maïano, Hue, Morin, &

Moullec, 2016), there is a need for added vigilance when using obesogenic medications with this population. However, gaps in systematic monitoring of antipsychotic adverse effects in this population have been reported (Javaheri & McLennan, 2019).

Conclusion

This case not only presents a notable example of a known and concerning phenomenon (i.e., polypharmacy with associated adverse effects in a vulnerable population), it situates it within service system contexts that likely contributed to its manifestation. Systematic and evaluated service system changes advanced to improve child mental health outcomes in vulnerable populations with explicit efforts to reduce iatrogenic impacts may have the potential to curb the development of such cases.

Acknowledgements / Conflicts of Interest

Thanks to Dr. Peter Braunberger for critical feedback received on early drafts of this manuscript. The author has no financial relationships to disclose. At the time of the preparation of this manuscript, the author was supported by a Research Chair in Child and Adolescent Psychiatry through the Children's Hospital of Eastern Ontario and the University of Ottawa.

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