

Safe and Judicious Paediatric Psychotropic Prescribing

Abstract:

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Abstract

Psychotropic medications are now a well-established and evidenced based treatment for increasing number of child mental health disorders prescribed at increasing frequencies and by increasing number of professional groups. Clinicians' perceived levels of competence and standardised monitoring lag behind prescribing practice and should be addressed by regular continuous professional development. A study specific questionnaire on psychotropic prescribing practice in children was mailed to all child psychiatrists and paediatricians working in Ireland and GPs from a selected Dublin CAMHS catchment area. Of the 116 who replied, (39% response rate), antidepressants (58.7%), antipsychotics (57.1%) and ADHD medications (36.5%) were most commonly prescribed. Results suggest increasing trends of monitoring amongst Irish clinicians over time, but with some lack of specificity. Commensurate with the wish of clinicians, ongoing training in paediatric psychopharmacology is considered essential in order to benefit from the increasing advances in pharmacology.

Introduction

Over the last few decades there has been a significant increase in the evidence base for, and use of, psychotropic medication for children^{1,2}. They are increasingly prescribed by paediatricians and general practitioners in addition to child psychiatrists^{3,5}. Linked to this has been the rapid development of newer classes of medications promising a much improved risk benefit ratio, and purporting reduced side effects. However with increased pharmacovigilance there has been a parallel increase in the reporting of serious and often unexpected adverse effects. Newer antipsychotic medications have been associated with significant cardiac and metabolic side effects⁶. Newer antidepressants, Selective Serotonin Reuptake Inhibitors (SSRI), whilst safer in overdose carry FDA 'black box' warnings regarding an increased risk of suicidality in children, adolescents and young adults⁷.

Psychostimulants, the mainstay treatment for ADHD, and one of the most common paediatric medication used, cause increases in heart rate and blood pressure, along with possible effects on height and weight trajectories⁸. They have more recently been associated with sudden unexplained death and carry a 'strong' warning from the Irish medicines board in this regard^{10,11}. Clinicians need to exert additional care in the paediatric population. The literature suggest that there is much variation in prescribing practices of clinicians, even within the same disorder, however we do not have similar levels of evidence which inform us regarding the monitoring practice of clinicians¹². There is a small but growing literature on the use of such medication in children in Ireland.

Methods

A study specific questionnaire was mailed to all child psychiatrists and paediatricians working in Ireland and GPs from a selected Dublin CAMHS catchment area. They were asked about prescribing practice of psychotropic medication in children. Attitudes, knowledge base and attitudes of their medical and non-medical colleagues were asked and reported separately.

Results

116 out of 300 questionnaires were returned giving a response rate of 39%. Forty-one identified themselves as child psychiatrists (36.9%), 46 (41.4%) as paediatricians and 24 (24%) as GPs. Respondents reported medications routinely used, listing antidepressants (58.7%), antipsychotics (57.1%) and ADHD medications (63.5%) as most commonly prescribed by the group (Table 1). Child psychiatrists were most likely to prescribe atypical antipsychotics (76.9%), followed by Methylphenidate (69.2%) and Fluoxetine (61.5%). Very few paediatricians reported prescribing psychotropic medication, (15%, N=7) and of those who did, they generally restricted their prescribing to ADHD medication, almost exclusively Methylphenidate. Of the 14 GPs who prescribed, (58% of respondents), both Methylphenidate (35.7%) and antidepressants (64.3%) were 'commonly' used with only one GP prescribing an antipsychotic.

Most child psychiatrists routinely carried out the following investigations, Height (39, 97.5%) Weight (38, 97.4%), Heart Rate (37, 97.4%), and Blood Pressure (39, 97.5%) (Table 2). These measures were also performed by most GPs, but at a lower frequency. Between 28-31 paediatricians responded to the questions on routine baseline investigations. Most of them indicated that they did not prescribe psychotropic medication and they replied that the questions were not applicable to them. Of the smaller number who did prescribe (N=9-12) nearly all (90%-92.3%) carried out these assessments. Despite antipsychotics medication being cited as the medication that the child psychiatrists most often used, investigations such as electrocardiogram (ECG), full blood count (FBC) and liver function tests (LFT) were less commonly done than height and weight measurements (Table 2).

Discussion

In this study, most child psychiatrists routinely carried out Height, Weight, Heart Rate and Blood Pressure (Table 2). It is generally accepted that these measures should be considered standard practice prior to prescribing a stimulants¹³. These results are higher than those reported in a UK sample of child psychiatrists (2001) and an Irish sample (2008), suggesting perhaps an increased awareness of the adverse effect on growth trajectories and the need for careful monitoring¹⁴. A recent study found that long term stimulant use (> 3 years) was indeed associated with a slower rate of physical development during puberty¹⁵, highlighting the need for regular monitoring, drug holidays and prescribing as low a dose as is possible¹⁶. Given the high rate of metabolic and cardiac effects of antipsychotics, it is generally accepted that standard practice should include baseline ECG, fasting blood glucose, cholesterol and lipid profile, LFT and FBC¹⁷. This study did not enquire about conducting baseline fasting lipids or cholesterol levels, but only 90% of child psychiatry respondents 'usually' carried out an ECG.

Controversy still remains regarding the routine request for ECG and FBC prior to prescribing stimulant medication. FBC was requested frequently by all respondents (86%) and by 10 of the 11 paediatricians who responded, despite the fact that their prescribing was generally limited to ADHD medications. Previous recommendations in the summary product of characteristics for methylphenidate regarding 'periodic complete and differential blood and platelet counts,' have since been removed¹⁸. A limitation of the study methodology was it did not differentiate baseline investigations based on medication type and so it is impossible to answer whether baseline ECGs or FBCs are restricted to antipsychotic use, particularly Clozapine in which regular FBCs are mandatory, or medication such as TCA which carry a higher cardiac risk.

Paediatricians typically prescribed only for ADHD cases, and their low threshold to conduct ECG suggests

that the Irish paediatricians may be following the recommendation by the American Heart Association¹⁰ (AHA) which in 2008 initially recommended routine baseline ECG prior to starting stimulant medication. The AHA statement is at odds with the carefully considered and evidence-based recommendations of the American Academy of Child Psychiatry and Paediatrics, who argue that sudden unexplained deaths occur in stimulant treated ADHD cases at a frequency no higher^{17,18} than in the general population and that routine ECG screening does little to predict cardiac deaths^{17,18}. In contrast, they recommend baseline ECGs only in those cases in whom there is an increased risk of cardiac events, either based on personal or family history. This is consistent with a recent large survey of 1200 practicing paediatrician members of the American Academy of Paediatrics, in which 93% completed a comprehensive history and physical¹⁹ examination, but only 15% performed an ECG prior to commencing psychostimulant medication. Recent literature reviews¹² highlight variability in the perceived a minimum accepted baseline investigations¹² and conclude a that no consistent guidelines around monitoring practice exist²⁰.

Thirteen best practice principles for safe and effective prescribing have been recommended²¹. These include taking a full psychiatric and medical history, basic physical examination and onward referral and targeted investigations when indicated. The authors also recommend the clinician develop a clear and multifaceted treatment plan with a focus not just on the initiation of medication, but also maintenance and when appropriate discontinuation. Similar plans regarding monitoring of medication effectiveness and adverse effect should be made explicit to the family including attention given to issues of adherence and informed consent. Adequate dose levels should be used, and polypharmacy kept to a minimum and supported by a clear rationale for use. The increase in prevalence of mental health disorders, particularly ADHD in which the role of medication is well established, occurs alongside continuing lack of adequately resourced services.

The recent 4th CAMHS report suggests that services in Ireland are at 38% of recommended level^{22,23}. Services that are available often do not have the full complement of staff with the necessary skills to offer the full range of treatments, with the risk of increased medication use by necessity. In the UK, between 1997- 2002, there has been a significant increase in the range and number of²⁴ medications prescribed, representing a ten-fold increase in children requiring medical monitoring. Regardless of whether such practice is acceptable, prescribing medication to young children, with all the biological and ethical concerns, needs to follow evidenced based practice, be judiciously used and follow high quality assessments with clear treatment and monitoring plans.

More recent guidelines, although limited to antipsychotic medication are to be welcomed, as they provide practice recommendations based on²⁵ both a systematic review of the literature and when absent, expert multidisciplinary group consensus. With advances in pharmacogenetics, genetic testing and therapeutic drug monitoring may become part of the routine clinical baseline testing and personalized medicine. However, in the current economic climate, routine and elaborate investigations with dubious clinical merit need to be seriously considered and the benefit, risk, and cost-effectiveness carefully studied. Commensurate with the wish of clinicians, continuous professional development in the area of paediatric psychopharmacology should be prioritized, and the issue of appropriate monitoring added to the topic list²⁵.

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Comments: