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Antipsychotic prescribing practice among child psychiatrists and community paediatricians

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Aims and method All child and adolescent psychiatrists and community paediatricians in the former Trent Region were surveyed about their antipsychotic prescribing practice during 1 year, including monitoring, and whether they would like consensus guidelines on prescribing and monitoring of antipsychotics in children and adolescents.

Results The majority (88%) of child psychiatrists and 33% of paediatricians had prescribed atypical antipsychotics, most commonly risperidone. Only two psychiatrists had prescribed a typical antipsychotic and no paediatrician had done so. Challenging behaviour in developmental disorders was the most common indication for atypicals. Both child psychiatrists and paediatricians prescribed atypicals for non-psychotic developmental disorders, whereas prescribing for psychosis occurred almost exclusively among psychiatrists. Height, weight and blood pressure were routinely monitored, but waist circumference was rarely measured and there was wide variation in the monitoring of other parameters such as blood glucose, prolactin and extrapyramidal side-effects. Three-quarters of the participants felt there was a need for guidance on prescribing and monitoring atypical antipsychotic therapy.

Clinical implications The greater prescription of antipsychotics by child and adolescent psychiatrists may reflect differences in case-load and training. Routine monitoring of adverse effects is inconsistent among prescribers. The survey highlights the need for training and guidance on prescribing and monitoring of atypical antipsychotic use in children and adolescents.

Declaration of interest None.

Atypical antipsychotic medication is increasingly prescribed 'off label' to children and adolescents. Reasons for changing prescribing practice are various and may include an increased evidence base of efficacy, concerns about the adverse effect profile of typical antipsychotics in young

people, better training in paediatric psychopharmacology, greater drug availability and promotion, and possibly also pressure on clinicians to act promptly and unavailability of non-pharmacological interventions.^{1,2} In children there is evidence that most atypical antipsychotics are prescribed

for non-psychotic rather than for psychotic disorders,² and these drugs have been found to be clinically useful in the treatment of severe disruptive behaviours associated with autism and mental retardation.^{3–6}

Despite their tolerability, atypical antipsychotic drugs are associated with serious adverse effects such as agranulocytosis and with metabolic and cardiovascular risks.^{7,8} These adverse effects may be more prevalent and more severe in children and adolescents than in adults.⁹ For the treatment of psychotic disorders in adults, the National Institute for Health and Clinical Excellence (NICE) recommends basic blood tests and collaboration with the patient.¹⁰ Clinicians are familiar with the NICE guidelines and the Clozaril Patient Monitoring Service (CPMS) for clozapine, but do not appear to follow any agreed monitoring protocol for other atypical antipsychotics, and patterns of monitoring are inconsistent across regions.^{11,12} Furthermore, there is no clear guidance on the initiation, dosing or monitoring of antipsychotic medication prescribed for children and adolescents and for non-psychotic disorders.

The last comprehensive survey of prescribing practice in the former Trent Region in the late 1990s showed the predominant use of a typical antipsychotic, thioridazine, and sparse use of atypicals.¹³ Our study aimed to review current prescribing and monitoring practice among child and adolescent psychiatrists and community paediatricians in a similar region of the UK.

Method

A postal survey of all community paediatricians and child and adolescent psychiatrists in South Yorkshire and Nottinghamshire was undertaken in February 2008 to ascertain their prescribing practice and monitoring of patients taking antipsychotic medications. The study was registered with the local research and development department of Nottinghamshire Healthcare National Health Service (NHS) Trust.

Participants completed a 13-item questionnaire, designed by the authors with help from the Sheffield Children's Hospital research and development department. The questionnaire enquired about the respondent's prescribing of antipsychotics (typical and atypical) in the preceding 12 months (from January to December 2007). Participants were asked to specify which atypical antipsychotics they prescribed, the clinical indication, the factors that influenced their decision to use the medication, how many patients they had prescribed antipsychotic medication for, and the age of these patients. No personally identifiable information was requested on individual patients.

The questionnaire also encompassed the type of physical and haematological monitoring parameters used at baseline and at follow-up. For each atypical antipsychotic agent that participants said they had prescribed, they were asked to indicate the tests they ordered routinely at baseline and follow-up. Participants were also asked how potential adverse effects influenced their monitoring practice and if they thought that having consensus guidelines on the use of

atypical antipsychotics would be helpful in their clinical practice.

We asked participants to rate factors that might influence their decision to use atypical antipsychotics using a Likert scale (1 strongly disagree, 2 disagree, 3 neither disagree nor agree, 4 agree, 5 strongly agree).

All analyses were conducted using the Statistical Package for the Social Sciences, SPSS version 14 for Windows. The chi-squared test with continuity correction (χ_{cc}^2) was used for comparing nominal outcomes. The cut-off for statistical significance was $P < 0.05$. No adjustment was made for multiple significance testing. For variables on an ordinal scale (ordered categories) the responses of community paediatricians were compared with those of child psychiatrists using the Mann-Whitney *U*-test.

Results

Of the 91 clinicians surveyed, 55 were community paediatricians and 36 were child psychiatrists. Of the 58 questionnaires returned, 55 were usable, with 3 returned uncompleted because the clinicians were on long-term leave. The overall response rate was 60% (55/91). The survey was completed by 30 community paediatricians and 25 child and adolescent psychiatrists (response rates of 56% and 67% respectively).

Overall, 32 (58%) responders had prescribed atypical antipsychotic medication in the preceding 12 months (Table 1). However, more child psychiatrists (88%) than community paediatricians (33%) had prescribed atypical antipsychotics in the 12-month period and this difference was statistically significant ($\chi_{cc}^2 = 13.93$, d.f. = 1, $P < 0.001$). Of the 32 respondents who had prescribed atypicals within the 12-month survey period, 36% ($n = 20$) had prescribed for 1–5 patients, 13% ($n = 7$) for 6–10 patients and 6% ($n = 3$) for 11–15 patients; 2 clinicians did not state how many patients they prescribed for. Forty-two (76%) respondents felt that guidance for the use of atypical antipsychotics would be helpful.

Only two respondents had prescribed typical antipsychotics. Risperidone was the atypical antipsychotic prescribed by most respondents (56%) followed by aripiprazole (20%), olanzapine (18%), clozapine (13%), quetiapine (6%) and amisulpride (6%). None of the responders prescribed ziprasidone (Fig. 1).

Indications

The most common indication for prescribing atypical antipsychotics was challenging behaviour/developmental disorder (endorsed by 46% of respondents), psychosis (36% of respondents), Tourette syndrome/tics (29% of respondents), attention-deficit hyperactivity disorder (ADHD; 14% of respondents), oppositional defiant disorder (4% of respondents), insomnia (2% of respondents), anxiety (2% of respondents) and obsessive-compulsive disorder (2% of respondents) (Table 1).

Monitoring

Respondents said they would routinely monitor height, weight and blood pressure but would rarely measure waist

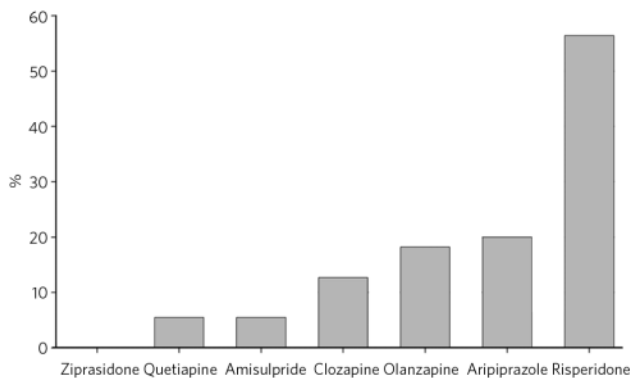


Fig 1 Percentage of clinicians prescribing individual atypical antipsychotics.

circumference. There was wide variation in monitoring practice across different atypicals. For example, an electrocardiogram would be obtained by two-thirds of respondents when using amisulpride compared with a quarter of those prescribing risperidone and none of those prescribing quetiapine. Lipid profiles would be requested by over 70% of responders using clozapine and olanzapine compared with fewer than 26% using risperidone and quetiapine. Urea and electrolytes analysis would be requested by more than three-quarters of respondents when using aripiprazole, clozapine, olanzapine or quetiapine compared with less than half (48%) for risperidone.

Participants were asked to state to what extent the presence of tardive dyskinesia, diabetes, weight gain, hyperprolactinaemia or cardiac complications would influence their monitoring practice. A comparison of the responses of child psychiatrists and paediatricians showed that of these factors only tardive dyskinesia ($P=0.016$) and diabetes ($P=0.006$) appeared to distinguish these two types of clinicians' monitoring practice. Psychiatrists were more likely to be influenced in their monitoring by these two factors than paediatricians.

Factors contributing to responders' decisions to use atypical antipsychotic medication

Psychiatrists were more likely than paediatricians to have their prescribing practice influenced by NICE guidance ($P=0.005$), patient preference ($P=0.003$), published research evidence in adult patients ($P=0.003$), adverse effect profile ($P=0.001$), published research evidence in children ($P=0.01$) and previous prescribing experience ($P=0.01$). Although the majority of participants (81%) believed that drug company promotions did not influence their prescribing decisions, more child psychiatrists felt strongly about this issue than paediatricians (91% v. 64%, $P=0.03$).

Discussion

Compared with a similar study by Slaveska *et al* in 1997, which reported that typical antipsychotic agents (thioridazine, chlorpromazine and haloperidol) comprised the bulk of antipsychotic prescribing by child and adolescents psychiatrists,¹³ our study shows that nearly a decade later atypical antipsychotics have almost entirely replaced typical antipsychotics in the prescribing practice of child and adolescent psychiatrists and community paediatricians surveyed in South Yorkshire and Nottinghamshire. We suspect that recent psychopharmacological advances and training may have enhanced clinicians' confidence in the use of atypical antipsychotic medications.

Taking child psychiatrists and paediatricians together, challenging behaviour in pervasive developmental disorder/learning disability was the most commonly endorsed indication for use of atypicals. Among child psychiatrists, the most commonly endorsed indication was psychosis, closely followed by challenging behaviour and then Tourette syndrome/tics. In their responses, clinicians described their typical practice rather than the actual number of cases treated during the survey period. Differences in antipsychotic use are also likely to reflect differences in case mix, with psychosis being treated almost exclusively by

Table 1 Type of antipsychotic prescribed, indications and need for guidance

	Community paediatricians (n = 30) n (%)	Child psychiatrists (n = 25) n (%)	Total (n = 55) n (%)
Prescribed typical antipsychotic in past 12 months	0 (0)	2 (8)	2 (4)
Prescribed atypical antipsychotic in past 12 months	10 (33)	22 (88)	32 (58)
Prescribing indication			
Challenging behaviour/developmental disorder	10 (33)	15 (60)	25 (45)
Psychosis	0 (0)	20 (80)	20 (36)
Tourette syndrome	1 (3)	15 (60)	16 (29)
Attention-deficit hyperactivity disorder	4 (13)	4 (16)	8 (14)
Oppositional defiant disorder	1 (3)	1 (4)	2 (4)
Insomnia	1 (3)	0 (0)	1 (2)
Obsessive-compulsive disorder	0 (0)	1 (4)	1 (2)
Anxiety	0 (0)	1 (4)	1 (2)
Would find guidelines helpful?			
Yes	19 (63)	23 (92)	42 (76)
No	10 (33)	2 (8)	12 (22)
Missing	1 (3)	0 (0)	1 (2)

psychiatrists. The growing evidence base supporting the use of atypicals in the management of severe aggression in children with autism appears to be influencing practice.

Our finding that risperidone was the favoured atypical for both child psychiatrists and paediatricians is consistent with the findings of Pappadopulos *et al* in 2002, Doerry *et al* in 2003 and Sivaprasad *et al* in 2006.^{1,3,11} Aripiprazole was the second favoured atypical, possibly because of its low perceived potential for causing weight gain and hyperprolactinaemia and its availability in liquid form.

We found monitoring practice to be highly variable among clinicians and practice did not reflect published guidelines for antipsychotic drug monitoring.¹⁴ As the immediate and long-term adverse effects of antipsychotics in children and adolescents are largely unknown beyond extrapolation from adult data, there is an urgent need to develop age-specific consensus guidelines for the use of these medications. This was echoed by over three-quarters of our sample, who said that they would find age-specific guidelines helpful that dealt with initiation, dosing and monitoring of antipsychotics in both psychosis and non-psychotic disorders.

Our survey had an acceptable response rate, similar to that of other antipsychotic prescribing surveys.^{11,12} The respondent profile in terms of geographical spread and seniority was similar to the total population of child psychiatrists and community paediatricians surveyed, suggesting that our sample was broadly representative of clinicians in this region of the UK. However, it remains possible that non-prescribers were disproportionately represented among non-responders. If we assume that all non-responders were non-prescribers, then the lowest estimate of atypical antipsychotic prevalence would be 61% (22/36) of child psychiatrists and 18% (10/55) of community paediatricians.

In terms of limitations, this was a regional survey and may not reflect opinion and practice across the UK. Second, our data are retrospective and liable to recall bias. Third, clinicians working in tier 4 and learning disability services were included in the survey, which might have had an effect on the findings. These clinicians generally manage more severe disorders including psychosis and may be more likely to prescribe antipsychotic medications. Since the questionnaires were anonymised, it was not possible to present results separately for this subgroup of responders.

In summary, we found that atypical antipsychotic drugs have almost entirely replaced typical antipsychotics in the prescribing practice of child psychiatrists and community paediatricians. Risperidone was the drug used by most prescribers, followed by aripiprazole. In both groups of clinicians, challenging behaviour in non-psychotic developmental disorders is the most common prescribing indication. Monitoring practice was inconsistent and most prescribers would welcome antipsychotic prescribing guidelines for children and adolescents covering initiation, dosing and monitoring in both psychotic and non-psychotic disorders.

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