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Letter to the editor

Evaluation of side effects using the BARS, SAS and AIMS in pediatric psychopharmacologic studies

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Dear Editor,

The number of new psychopharmacologic studies on the effectiveness and safety of atypical anti-psychotic medication is growing rapidly [7]. Several rating scales are commonly used in adult populations for evaluating extrapyramidal side effects. Three in particular have been used extensively in pediatric studies:

1. Abnormal Involuntary Movements Scale (AIMS) [3,5];
2. Simpson Angus Scale (SAS) [6]. This scale assesses extrapyramidal side effects;
3. Barnes Akathisia Rating Scale (BARS) [1].

While these scales have been used in research on pediatric populations, adaptations for pediatric age groups are notably absent in the literature. A panel of three child psychiatrists (GZ, AA and AW), a child neurologist (TS) and an epidemiologist (MO) assessed the feasibility and implications of using these rating scales in pediatric populations.

Certain side effects (e.g. acute dystonia) are reported to be more common in younger patients, whereas other types of effects (e.g. parkinsonism) are thought to be relatively rare [2]. Others are believed to be evenly distributed, as shown in a study of hospitalized inpatients suggests that rates and subtypes of akathisia do not vary by age [4]. However, the applicability of these findings to pediatric patients is limited as the majority of studies in the literature based on samples of subjects between the ages of 18–60.

Based on our review, most of the items in the three rating scales seemed to be useful in pediatric studies as in adult studies. However, certain adaptations were recommended by the panel:

1. for item #9 in the AIMS (incapacitation due to abnormal movements), we suggest language be added to specify what constitutes incapacitation in children and add the words

“impairment in everyday life, school, social, and recreational activities”;

2. items 11 and 12 concerning dental status in the AIMS are irrelevant in the pediatric age group and should be omitted or edited to reflect oral health issues more likely to occur in children and adolescents (e.g. orthodonture);
3. in the SAS, item #8, glabellar tap seems to be relevant for young children as well. However, per the suggestions of various sources, glabellar tap should be performed by an examiner standing to the side, rather than behind the subject;
4. in the SAS, when considering item #10 (salivation), it should be noted that salivation in younger patients may be also due to tonsillitis or pharyngitis as well as parkinsonian side effects;
5. while rating akathisia in children using the BARS, it should be noted that Attention Deficit Disorder (ADHD) may present with similar rates of restlessness. In ADHD, unlike akathisia, the movements are intentional and goal-oriented and children report no subjective distress related to the movements.

With the exception of those minor changes and adaptations, we find the AIMS, SAS and BARS to be acceptable tools for use in psychopharmacology studies in pediatric populations. As new studies of novel antipsychotics are initiated to help treat child and adolescent onset psychotic disorders, collection of data on motor side effects should be systematically studied and compared with data from adult studies to help develop evidence-based approaches to side effect management.

Conflict of interest statement

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All authors declare no conflict of interest.

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