Methylphenidate: use in daily practice

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Abstract

Objective: With the aim of getting more insight into compliance of children using methylphenidate, we studied the day-to-day use of the drug. In addition, the efficacy and side effects of treatment, stopping, switching to other drugs and the use of additional psychoactive drugs in daily practice were studied.

Method: On the basis of pharmacy records, the use of methylphenidate by 52 children was studied. Two parameters for compliance were calculated. By means of a questionnaire, parents were asked about their children’s compliance with the use of methylphenidate as well as about their experience with treatment.

Main outcome measure: Compliance, use of methylphenidate in weekends and holidays, self-reported efficacy, side effects, stopping and switching to other drugs.

Results: Depending on the parameter calculated, the percentage of children with a good compliance varied from 25 to 47%. About 65% of the children used less or no methylphenidate in the weekends and holidays. Sixty-five percent of the parents reported to pass over a dose once in a while. According to 61% of the parents (n = 28) the efficacy of methylphenidate was good or very good. Nine (33%) of 28 children stopped using methylphenidate. Seven children stopped using the drug because of side-effects or lack of efficacy. Seven children switched to other psychoactive drugs. Fifty-seven percent of all children used additional psychoactive drugs.

Conclusion: The percentage of children having a good compliance calculated on the basis of pharmacy records is rather low. This is partly the result of the decreased use of methylphenidate in the weekends and holidays.

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Introduction

During the last decade the use of methylphenidate sharply increased1–4, which resulted in public concern about this phenomenon5. Lack of sufficient data on the efficacy and side-effects of methylphenidate in daily practice and uncertainty about long-term effects contributed to this concern.

In general, compliance with the use of drugs is important for the efficacy of treatment. However, non-compliance frequently occurs in different ways. Patients may take their drugs at the wrong time, take a dose too low or too high, or take their drugs more or less frequently than prescribed. Patients may also stop too early, take drug holidays, or continue too long with the treatment6. Non-compliance may result in a reduced efficacy of drug treatment or even enhance the risk of side-effects. In addition, non-compliance interferes with the correct assessment of the efficacy of the drug7.

Several drug-related factors such as inefficacy and side-effects are known to influence compliance8. It has also been shown that compliance decreases with the frequency that drugs have to be taken9,10.

Only limited data on compliance with the use of methylphenidate by children are available. A recent review by Swanson addressed studies of compliance with stimulants11. The results of a study involving 76 children showed that 26% of the parents refused stimulant treatment for their children, and 56% of the children who started with methylphenidate stopped within 10 months12. Assessing compliance with methylphenidate by pill counting, Brown et al. reported a return of 25% of medication13.

Because of side-effects such as growth retardation, parents may withhold medication during holidays. A study evaluating parental approaches for their child’s ADHD showed that many parents withheld medication at home and during holidays14. Precise data on this phenomenon, however, are not available.

The aim of the present study was to gain more insight into children’s compliance with the use of methylphenidate, in The Netherlands. For this purpose, compliance was determined by using data from pharmacy records. In addition, parents of children treated with methylphenidate were asked about the use of methylphenidate by their children and their experience with the drug, by means of a questionnaire.

Method

Setting and study population

The study was conducted among 52 children aged 4–14 years who were treated by one child psychiatrist practising in the city of Amstelveen (Amsterdam area). Methylphenidate was dispensed to the children by one of the eight community pharmacies in Amstelveen serving about 80,000 patients. Criteria to participate in this study were the use of methylphenidate from 1 January 1999, at least two recorded prescriptions for the drug and the availability of medical data. At the time the study was performed, methylphenidate was available only as an immediate release formulation.

Assessment of compliance and experience with the use of methylphenidate

Compliance deduced from pharmacy dispensing data

For all children, pharmacy dispensing data were collected from December 1996 till January 1999. For subsequent prescriptions, dispensing date and stop date were collected. In case, if the children had started...
using methylphenidate before 1 December 1996, then
the medication overview was studied from this date
onwards. If children were using methylphenidate from
31 January 2000, a stop date was chosen on the basis of
medical data of the psychiatrist. Gender, age and
diagnosis were collected from the medical files.
Two parameters for compliance, MED-TOTAL and
MED-OUT, were calculated. These parameters have
previously been described\(^{13–17}\). MED-TOTAL is cal-
culated as T/L. T is the sum of the theoretical number of
days of drug use of the individual prescriptions. L is the
number of days between the first and the last dispens-
ing date of methylphenidate. At a MED-TOTAL of 1,
compliance is optimal. At lower and higher values,
respectively, too little and too much medication has
been dispensed. MED-OUT is calculated as the sum of
days without drug/L. By counting the number of days
without drug, the medication saved up is taken into
account. A value of MED-OUT of 0 indicates no days
without drug use. Higher values indicate one or more
days without medication.

Compliance and experiences determined via
a questionnaire for parents

In February 2001, a questionnaire on the use of
methylphenidate was sent to 46 parents of the
children who used methylphenidate. Parents were
also asked about the children’s experience with the
drug. All children involved in the study of compli-
bance based on pharmacy records participated in this
study. However, children not living in Amstelveen
were excluded, as well as children of parents con-
sidered incapable of completing the questionnaire
according to the opinion of the psychiatrist. Appli-
cation of these criteria led to the exclusion of six
children.

The questionnaire contained questions about
compliance and experience with the drug. Questions
concerning compliance were about the dose, and use
of the drug in the weekends, holidays less than
2 weeks and summer holidays, as well as questions
about passing over the doses and the reasons for that.
Questions concerning experience with the drug
were about the efficacy, side-effects, stopping of the
drug, switching to other drugs and the use of addi-
tional psychoactive drugs. From a list of side-effects
parents could indicate which of those occurred.

Data analysis

Data were analysed using the computer programme
SPSS 9.0. Descriptive statistics were applied.

Results

Compliance on the basis of pharmacy records

Fifty-two children aged 4–14 years were included in
the study. Basic characteristics have been listed in
Table 1. Many children suffering from diseases other
than ADHD were also prescribed methylphenidate.
These included autism, anxiety and depression
(Table 1). Twenty-one children also used other drugs.

The MED-TOTAL is presented in increments of
0.2 units in Figure 1. Twenty-five percent of the chil-
dren had a good compliance. Ten percent of the
children had a MED-TOTAL higher than 1.1. These
children used more than the prescribed dose. For 65%