

Methylphenidate Use for Attention Deficit Hyperactivity Disorder in Northern Israel – A Controversial Issue

Yacov Fogelman MD¹ and Ernesto Kahan MD MPH²

¹ Department of Family Practice, HaEmek Medical Center, Afula and Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, Haifa, Israel

² Department of Family Medicine, Sackler Faculty of Medicine, Tel Aviv University, Ramat Aviv, Israel

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Abstract

Background: The prevalence of attention deficit hyperactivity disorder and its pharmacologic treatment have increased dramatically in the past decade in the United States and Britain. We examined the use of methylphenidate hydrochloride for the treatment of ADHD in children in northern Israel.

Methods: We evaluated all prescriptions for methylphenidate filled in 1999 for children aged 5–18 years residing in northern Israel who were insured by Clalit Health Services, a health maintenance organization that covers approximately 70% of the population.

Results: Methylphenidate was prescribed to 1.45% of the children in northern Israel in 1999, an increase of 20% in the overall prevalence of methylphenidate use since 1992. Eighty-two percent were boys. The rate of prescription varied widely by type of settlement, from 0.2% in Arab cities and towns to 5.7% in kibbutzim. Primary care physicians wrote 78% of all the prescriptions.

Conclusions: The increase in methylphenidate use was much smaller in northern Israel than in most other developed regions and countries. More efforts at diagnosis and treatment of attention deficit disorders may need to be directed at Arab populations and those with inadequate medical services.

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Attention deficit-hyperactivity disorder is one of the most common behavioral disorders of childhood, with effects lasting into adult life. According to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV), the prevalence of ADHD in the school-age population is 3–5% [1]. Besides its impact on the social and scholastic adjustment and self-image of patients, ADHD takes a high toll on family cohesion and school environment and places a heavy financial burden on the health system [2]. Methylphenidate hydrochloride is currently the treatment of choice for ADHD because of its efficacy, ease of administration, high tolerability, and relative

freedom from the potential of abuse [3]. It increases the ability of affected children to concentrate and to control impulsive behavior. Its use is still somewhat controversial owing to concerns over the effects of long-term administration of stimulants to children [4].

The epidemiological characteristics of ADHD and the consumption of methylphenidate have been investigated mostly in large-scale studies in the United States. Safer and Krager [5] examined trends in the rate of methylphenidate use over a 25 year period in Baltimore County, Maryland, using data from bi-annual registries of school nurses that listed the students receiving medication for “hyperactivity.” They found that the use of methylphenidate increased steadily over time at all grade levels, and by 1987 it was being prescribed for 5.96% of all public elementary school children. On the whole, in the USA, the average consumption of methylphenidate increased 2.5-fold from 1981 to 1992 [6]. This is in accordance with data on the prevalence of attention deficit disorders, showing that the number of people with this diagnosis rose from 900,000 in 1990 to about 2 million in 1995 [7,8]. In Britain as well, prescriptions rose from 183,000 in 1991 to 1.58 million in 1995 [9]. By contrast, in some European countries, methylphenidate consumption is very low [10] and is restricted by both custom [11] and law. In West Germany only 2,580 children used the drug regularly during 1991, at a prescription rate 100- to 300-fold lower than in the U.S. [12].

The aim of the present study was to investigate the use of methylphenidate among children in northern Israel. We also studied the demographic features of the users and the specialty of the physicians who prescribed the drug.

Methods

The details of all prescriptions for methylphenidate filled from 1 January 1999 to 31 December 1999 in the northern region of Israel were drawn from the database of the Clalit Health Services, the largest health maintenance organization in Israel, which insures about 70% of the population. The study included children aged 5–18 years who were residents of this region in 1999 and had received at least one prescription for methylphenidate. A prescription was defined as one package of 30 tablets. Each patient was included in the analysis only once, regardless

ADHD = attention deficit-hyperactivity disorder

of the total number of prescriptions received. Other data extracted from the prescriptions were patient's residential address, date of issue, and the name and specialty of the prescribing physician. Data on the type of settlement in which the patients resided were supplied separately from the same database.

Results

Of the 355,481 residents of northern Israel insured by Clalit in 1999, 118,976 (30%) were between the ages of 5 and 18. Of these, 1,725 received prescriptions for methylphenidate, at an overall 1 year prevalence rate of 1.45%. The prevalence was also calculated separately by type of settlement: in northern Israel there are 94 kibbutzim and 42 moshavim (both communal-type settlements), 22 Jewish cities, 15 Jewish towns, and 26 Arab cities and towns. We found that the rate of methylphenidate prescription ranged from 5.7% in the kibbutzim to 0.2% in the Arab towns – a difference of 28-fold [Table 1]. This difference persisted even when we compared the prevalence in Arab towns and Jewish moshavim that have a similar low socioeconomic-educational level [Table 2]. There was a non-significant difference between low and high socioeconomic-educational levels in moshavim settlements [Table 2].

Primary care physicians wrote 78% of all the prescriptions, although many of the recommendations for the drug were made by pediatricians or neurologists. An additional 20% were written by pediatricians and 2% by pediatric neurologists. Eighty-two

percent of the recipients of methylphenidate prescriptions were boys.

Discussion

Epidemiologic studies from the USA using standardized diagnostic criteria suggest that about 3% of the school-age population is treated for ADHD [13]. Our present study found an overall prevalence of 1.45% in the northern region of Israel. This rate is high compared to European standards and relatively low compared to the U.S. [6,9]. Though the pharmacologic treatment of ADHD in the USA and the UK has increased dramatically in recent years (about 2.5-fold) [6–8], comparison of the current rate in northern Israel with figures published in 1992 for the same population (1.29%) [14] yielded an increase of only 20.8%.

Interestingly, there was a large difference (28-fold) in the proportion of medicated children among the different types of settlements. A similar study in Michigan reported a tenfold difference, which the authors attributed to the wide range of prescription practices among physicians. This was supported by a national survey in the USA on the knowledge and attitudes of pediatricians regarding the diagnosis and treatment of ADHD [15], and by other studies as well [16]. In Israel, cultural differences between Arab and Jewish populations may also affect their attitudes toward the inattentive or hyperactive child. In addition, differences in access to medical and mental health services may be an important factor. Cowart [17] suggested that

children with limited access to preventive healthcare services and to centers that assess behavioral and developmental problems may be under-diagnosed and under-treated. Accordingly, Zito and colleagues [18] found that African-American youth were 2.5 times less likely to receive methylphenidate than Caucasian youth, and Safer and Krager [5] reported that the higher the socioeconomic status the greater the probability of being prescribed stimulants. In our study, differences in socioeconomic status among settlements did not explain the enormous variations in methylphenidate use. Moreover, the lack of a significant difference between the rate of the drug's use in Jewish moshavim that have different socioeconomic levels suggest that other factors may influence the use of methylphenidate, such as accessibility to adequate medical services or cultural differences. These results are consistent with Safer and Krager's findings [5] of a lack of correlation

Table 1. Prevalence of methylphenidate use in children aged 5–18 years in northern Israel, by type of settlement

Type of settlement	No. of settlements	No. of medicated children	Total no. of child residents	Prevalence of drug use
Kibbutzim	94	711	12,428	5.7%
Moshavim	42	140	7,019	2.0%
Jewish cities	22	679	46,513	1.5%
Jewish towns	15	87	5,276	1.65%
Arab cities and towns	26	108	47,740	0.2%
Total	199	1725	118,976	1.45%

Table 2. Prevalence of methylphenidate use in children aged 5–18 years in settlements classified by type of socioeconomic-educational level in northern Israel

Type of settlement (socioeconomic-educational level)	No. of settlements	No. of medicated children	Total no. of child residents	Prevalence of drug use
Kibbutzim (high)	94	711	12,428	5.7%
Moshavim. (low)	11	41	1,258	3.3%
Moshavim. (high)	26	85	2,955	2.9%
Jewish towns (high)	15	87	5,276	1.7%
Arab cities and towns (low)	25	108	47,486	0.2%
Arab cities and towns (medium)	1	–	254	–

Due to lack of data on socioeconomic-educational level, 5 moshavim and all the 22 Jewish cities were not included. There was a non-significant difference between low and high level in moshavim ($P=0.5$).

between socioeconomic status and methylphenidate use. Kibbutz members not only enjoy a substantially higher standard of living than both urban residents and the Arab population, but also better access to adequate medical services. Possibly, people further up the social scale tend to seek medical care more often, report problems related to attention deficit and hyperactivity, and enjoy a wider spectrum of medical services. The proclivity of kibbutz members to consume more medical services than their city-dwelling counterparts has also been noted for conditions other than ADHD [19]. Chassin and colleagues [20], who studied geographic variations in the use of health services, concluded that they are not accounted for by the inappropriate use of certain diagnostic procedures. In particular, they emphasize that thresholds for referral and openness of channels may vary among regions. We also found that although both the kibbutz patients and the other study populations were members of a single health maintenance organization and were referred to the same outpatient clinic of the single regional hospital, certain peculiarities of the healthcare system in Israel place the kibbutzim at an advantage, particularly the low turnover rate of kibbutz physicians. Unfortunately, we cannot compare our results with similar data in other Israeli regions since we found only one report in the medical literature of a study conducted in northern Israel.

In conclusion, a relatively high average rate of methylphenidate use was recorded in northern Israel, especially among kibbutz children. However, the general trend of use is lower than in other developed regions and countries. Cultural and social class, as well as availability of adequate medical services, seem to be the major determinants of the diagnosis and treatment of behavioral disorders. They may govern both physicians' mode of practice and patients' health-seeking behavior. The early detection and treatment of ADHD and its co-morbidities (especially conduct and emotional disorders) are important and may determine the prognosis and quality of life (antisocial personality, drug addiction, etc.). Efforts should be directed at populations in which under-diagnosis of ADHD is suspected.

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Correspondence: Dr. Y. Fogelman, P.O. Box 121, Givat Elah 23800, Israel.

Phone: (972-4) 659-4070, cellular 053-797262

Fax: (972-6) 652-6129

email: fogelman@netvision.net.il