Canadian Agency for Drugs and Technologies in Health

RAPID RESPONSE REPORT:
SUMMARY WITH CRITICAL APPRAISAL

TITLE: Quality Assessment of the Canadian Attention Deficit Hyperactivity Disorder Resource Alliance ADHD Practice Guidelines for Children, Adolescents and Adults with ADHD

DATE: 02 May 2011

CONTEXT AND POLICY ISSUES

The National Survey of Children's Health estimated, in 2007, the prevalence of children aged 4 to 17 years with attention deficit hyperactivity disorder (ADHD) diagnosis to be 9.5%,[1] a 21.8% increase from the year 2003.[2] In 2003 the National Comorbidity Survey Replication estimated the prevalence of attention deficit hyperactivity disorder (ADHD) in adults living in the United States as 4.4%.[3] The lifetime risk projections, from this survey, expected that the prevalence of adult ADHD will continue to rise.

Although the guidelines on diagnostic and clinical management of ADHD in adults agree on general therapeutic concepts, details in the context of the particular health care system and social implications appear to be lacking. In Canada, two guidelines on the management of ADHD were published and are in use. The first was published by the Collège des médecins du Québec in 2001 and updated in 2006[4,5] This guideline focused on the clinical management of school-aged ADHD patients. The second was published in 2011 by the Canadian Attention Deficit Hyperactivity Disorder Resource Alliance (CADDRA) as the third edition of the Canadian ADHD Practice Guidelines (CAP-G).[6] The guideline was developed to help Canadian physicians diagnose and treat ADHD across the lifespan of the individual. This review will assess the quality of the CAP-G for the diagnosis and treatment of ADHD in children, adolescents, and adults. The current review is an update of a previous report[7] that was a quality assessment of the CAP-G and focused on aspects related to ADHD in adults.

RESEARCH QUESTION

What is the quality of the CADDRA ADHD Practice Guidelines for children, adolescents, and adults with ADHD?

KEY MESSAGE

The CADDRA ADHD practice guidelines provide information on the available diagnostic and clinical management options for ADHD patients. However, there were no details on the process of searching, selection, and synthesis of evidence to support its recommendations.

METHODS

The Appraisal of Guidelines Research & Evaluation (AGREE) instrument[8] was used by two independent reviewers to evaluate the quality of the 2011 CAP-G. The domains of scope and purpose, stakeholder involvement, rigour of development, clarity and presentation, applicability, and editorial independence were assessed using 23 key items. Each item was rated on a four-point scale, as follows:

- 4 = Strongly Agree
- 3 = Agree
- 2 = Disagree
- 1 = Strongly Disagree.

Standardized scores were calculated using scores assigned by the two reviewers.

SUMMARY OF FINDINGS

Standardized domain scores are reported in Table 1. The rationale for the scoring of each domain is summarized.

Scope and purpose

The preface section of the guidelines states the general objectives of CADDRA, which include disseminating information on ADHD in Canada, developing and updating the CAP-G, facilitating the development and implementation of training standards in the care of ADHD patients, and sharing information amongst all stakeholder groups. Furthermore, it defines four categories of core principles included in the CAP-G: principles for assessment and diagnosis, intervention, informed consent, and advocacy. The CAP-G is not specific to particular age groups; instead, it is intended to be used across the lifespan of ADHD patients.

Stakeholder involvement

The editorial committee of the CAP-G was made up of the CADDRA executive board, which included 12 members: eight psychiatrists, one pediatrician and one psychiatrist, one family physician, and one clinical assistant professor. Detailed affiliations and disclosures of these members were provided in the CAP-G document. Although the CAP-G empowers patients to make informed choices in a collaborative process of care, there was no evidence of involvement of patient representatives in the guidelines development group. However, information from patient interviews or from literature reviews for patient's experiences was considered during the formulation of recommendations. The CAP-G is specific to Canadian practice, and target users comprise specialists and primary care practitioners with no further specifications. During the development of CAP-G, the suggested schedule of visits was pilot-tested with family doctors

and community pediatricians in Canada, but there was no evidence that the CAP-G as a whole was pilot-tested for further validation amongst its intended users prior to publication.

Rigour of development

The CAP-G committee reviewed the other ADHD guidelines and consensus statements in current use at the time of the CAP-G development. There was no evidence of systematic methods used in searching for and selecting evidence. Recommendations in CAP-G were provided under “action” and “practice points” subheadings, but there were no explicit links between these recommendations and the supporting evidence. The main text of CAP-G provided a summary of the available options in the clinical management of ADHD. Some statements in the text were classified as consensus-based, but there was no further information on how the consensus was reached and recommendations formulated. Authors of the CAP-G reported in the preface section that evidence-based data was cited in the literature listed in the reference list, but there were no indications on how and when this evidence-based data was used to prepare recommendations or the guidelines in general.

The CAP-G recommended multiple visits, instead of a single longer one, for the assessment and diagnosis of ADHD, but neither the evidence nor the expected benefits of this recommendation were discussed. Although, in the diagnosis chapter, the CAP-G suggested an assessment tool kit including different rating scales and questionnaires, the validity of these tools were not discussed.

Specific issues related to the management of ADHD in children, adolescents, and adults were discussed in a separate chapter for each age group. In the management of children with ADHD, interventions with patients’ parents would focus on informing families about the etiology, diagnosis, and treatment of ADHD, as well as involving them in the planning of the therapeutic approach. Treatment options given in this chapter were marked as consensus based, with no further information on the development of this consensus. For adolescent ADHD patients, the CAP-G provided directions to develop a therapeutic alliance between the adolescent and the physician and to monitor adherence to ADHD medications. This chapter also raised safety concerns about ADHD-related risks specific to adolescents, including ADHD medications interactions with illicit drugs and alcohol, driving problems, sexual risk associated with teenage pregnancy and unprotected sex, and educational failure as a consequence of uncontrolled ADHD. On the other hand, the chapter on the management of adults with ADHD focused on the assessment and diagnosis of ADHD, the evolution of the disease and the associated comorbidities. This chapter also provided a sequence of therapeutic interventions for uncomplicated adult ADHD including psychoeducation, behavioural intervention, use of assistive and organizational technologies, and pharmacotherapy ; the evidence supporting this sequence was not discussed.

The guidelines reported that a combined therapy using medication plus psychosocial interventions was the most efficient way to deal with core symptoms of ADHD and the resulting impairments in all age groups; however, type and strength of evidence were not provided. The proposed psychosocial interventions included psychoeducation, behavioral interventions, social interventions, psychotherapy, and educational/vocational accommodations, but the benefits of each of these methods over the others were not discussed.

For the pharmacological treatment of ADHD, the CAP-G suggested 13 general considerations in medication selection; however, no evidence was provided to support these considerations. (Considerations in medication selection include age and individual variation, duration of effect, the speed of action of the medication, ADHD subtypes, a comorbid symptoms profile, comorbid psychiatric disorders, history of earlier medication use, attitudes toward medication use, affordability, medical problems and other medications, associated features similar to medication side effects, comorbid stimulants with other medications, and physician attitude toward ADHD medications.)

Furthermore, as per the CADDRA Board, CAP-G recommended an off-label, maximum daily dosage of ADHD medications for adults higher than the dosage approved in the product monogram, while for children and adolescent some medications were recommended at a higher or lower dose. It was mentioned that these recommendations were based on clinical use and research data, but details on the evidence were not provided. Tables 2, 3, 4 summarize the recommended dosage of ADHD medications for children, adolescents, and adults respectively.

The editorial board of CAP-G had four external reviewers, but there was no information about their contribution in the development of the guidelines. Authors mentioned that the CAP-G is an active document that will be revised online as new information becomes available, but there was no information on the mechanism and frequency of this update.

Clarity and presentation

Recommendations in the CAP-G are easily identified under “action” and “practice points” subheadings, but the document did not provide a comprehensive table of the given recommendations. Different options for the diagnosis and management of ADHD were stated. The CAP-G document included the CADDRA ADHD assessment tool kit, which was comprised of:

- CADDRA ADHD assessment form
- Weiss symptom record
- ADHD checklist
- SNAP-IV 26 Teacher and Parent Rating Scale
- Adult ADHD Self-Report Scale
- Weiss Functional Impairment Rating Scale
- CADDRA Clinician ADHD Baseline/Follow-Up Form
- CADDRA Patient ADHD Medication Form.

Applicability

The CAP-G provided recommendations on the diagnosis and clinical management of ADHD. As per the guidelines’ recommendations, assessment and diagnosis of ADHD should be conducted over multiple sessions rather than one longer visit by clinicians adequately trained on ADHD. Although the feasibility of multiple-sessions assessment was pilot-tested, organizational barriers to applying these recommendations (e.g., availability of adequately trained clinicians and the need for training clinicians on ADHD, financial burden of multiple visits assessment) were not explored in detail. Moreover, clinical management of ADHD was identified as holistic-based care composed of five tiers:

- adequate education of patients and their families
- behavioural and/or occupational interventions
- psychological treatment
- educational accommodations
- medical (pharmacological) management.

Coordination and feasibility of these treatment pillars were not evaluated in the context of CAP-G. Recommendations on the pharmacological management of ADHD proposed off-label dosage, different from what was mentioned in the product monograph, but the economic impact of this usage was not evaluated. CAP-G did not provide information on monitoring or measuring the impact of applying the guideline, important patient outcomes, or how to measure adequate response to clinical management.

Editorial independence

Members of the editorial committee were affiliated with both the pharmaceutical industry and academia, and their conflicts of interest were disclosed. The CAP-G did not receive any financial grants from industry.

Table 1: Individual Domain Scores and Standardized Domain Scores for CAP-G Guidelines Using Appraisal of Guidelines Research & Evaluation[8]

Item	Appraiser 1	Appraiser 2	Standardized Domain Score*
Scope and Purpose			
1. The overall objective(s) of the guideline is (are) specifically described.	4	4	0.89
2. The clinical question(s) covered by the guideline is (are) specifically described.	4	3	
3. The patients to whom the guideline is meant to apply are specifically described.	3	4	
Stakeholder Involvement			
4. The guideline development group includes individuals from all the relevant professional groups.	4	4	0.54
5. The patients' views and preferences have been sought.	1	1	
6. The target users of the guideline are clearly defined.	3	4	
7. The guideline has been piloted among target users.	2	2	
Rigour of Development			
8. Systematic methods were used to search for evidence.	2	1	0.45
9. The criteria for selecting the evidence are clearly described.	1	1	
10. The methods used for formulating the recommendations are clearly described.	1	2	
11. The health benefits, side effects, and risks have been considered in formulating the recommendations.	4	3	
12. There is an explicit link between the recommendations and the supporting evidence.	1	2	
13. The guideline has been externally reviewed by experts prior to its publication.	4	4	
14. A procedure for updating the guideline is provided.	4	3	
Clarity and Presentation			
15. The recommendations are specific and unambiguous.	3	2	0.71
16. The different options for management of the condition are clearly presented.	4	4	
17. Key recommendations are easily identifiable.	3	1	
18. The guideline is supported with tools for application.	4	4	
Applicability			
19. The potential organizational barriers in applying the recommendations have been discussed.	2	3	0.39
20. The potential cost implications of applying the recommendations have been considered.	2	3	
21. The guideline presents key review criteria for monitoring and/or audit purposes.	2	1	
Editorial Independence			
22. The guideline is editorially independent from the funding body.	4	4	0.92
23. Conflicts of interest of guideline development members have been recorded.	4	3	

CAP-G = the Canadian ADHD Practice Guidelines,
*The standardized domain score = (obtained score – minimum possible score)/(maximum possible score – minimum possible score).

Table 2: Recommended Daily Maximum Dosage of ADHD Medications for Children as Per CAP-G[6]

Brand Name	Daily Maximum Dosage	
	Per Product Monograph*	Per CADDRA Board
First-Line Agents — Long-Acting Preparations		
Adderall XR® (*amphetamine mixed salts*)	30 mg	30 mg
Biphentin (*methylphenidate HCL*)	60 mg	60 mg
CONCERTA® (*methylphenidate HCL*)	**54 mg**	**72 mg**
Strattera® (*Atomoxetine*)	Lesser of 1.4 mg/kg/day or 60 mg/day	Lesser of 1.4 mg/kg/day or 60 mg/day
Vyvanse® (*lisdexamfetamine dimesylate*)	60 mg	60 mg
Second-Line/Adjunctive Agents — Short-Acting and Intermediate-Acting Preparations		
Dexedrine® (*dextroamphetamine sulphate*)	**40 mg**	**20 mg**
Dexedrine® Spansule (*dextroamphitamine sulphate*)	**40 mg**	**30 mg**
Ritalin® (*methylphenidate HCL*)	60 mg	60 mg
Ritalin® SR (*methylphenidate HCL*)	60 mg	60 mg
Generic Medications		
PMS® or **Ratio®- methylphenidate**	60 mg	60 mg
Novo-MPH ER-C® (*methylphenidate*)	**54 mg**	**72 mg**

ADHD = attention deficit hyperactivity disorder; CAP-G = the Canadian ADHD Practice Guidelines; ER = extended-release; HCL = hydrochloride ; MPH = methylphenidate; SR = sustained release

* Per product monograph doses were reported in the CAP-G guidelines.

Table 3: Recommended Daily Maximum Dosage of ADHD Medications for Adolescents as Per CAP-G[6]

Brand Name	Daily Maximum Dosage	
	Per Product Monograph*	Per CADDRA Board
First-Line Agents — Long-Acting Preparations		
Adderall XR® (*amphetamine mixed salts*)	**20 mg to 30 mg**	**50 mg**
Biphentin® (*methylphenidate HCL*)	**60 mg**	**80 mg**
CONCERTA® (*methylphenidate HCL*)	**54 mg**	**90 mg**
Strattera® (*Atomoxetine*)	Lesser of 1.4 mg/kg/day or 100 mg/day	Lesser of 1.4 mg/kg/day or 100 mg/day
Vyvanse® (*lisdexamfetamine dimesylate*)	**60 mg**	**70 mg**
Second-Line/Adjunctive Agents — Short-Acting and Intermediate-Acting Preparations		
Dexedrine® (*dextroamphetamine sulphate*)	**40 mg**	**30 mg**
Dexedrine® Spansule (*dextroamphitamine sulphate*)	**40 mg**	**30 mg**
Ritalin® (*methylphenidate HCL*)	60 mg	60 mg
Ritalin® SR (*methylphenidate HCL*)	**60 mg**	**80 mg**
Generic Medications		
PMS® or **Ratio- methylphenidate**	60 mg	60 mg
Novo-MPH ER-C® (*methylphenidate*)	**54 mg**	**90 mg**

ADHD = attention deficit hyperactivity disorder; CAP-G = the Canadian ADHD Practice Guidelines; ER = extended-release; HCL = hydrochloride ; MPH = methylphenidate; SR = sustained release

* Per product monograph doses were reported in the CAP-G guidelines.

Table 4: Recommended Daily Maximum Dosage of ADHD Medications for Adults as Per CAP-G[6]		
Brand Name	**Daily Maximum Dosage**	
	Per Product Monograph*	**Per CADDRA Board**
First-Line Agents — Long-Acting Preparations		
Adderall XR® (*amphetamine mixed salts*)	**20 mg to 30 mg**	**50 mg**
Biphentin® (*methylphenidate HCL*)	80 mg	80 mg
CONCERTA® (*methylphenidate HCL*)	**72 mg**	**108 mg**
Strattera® (*Atomoxetine*)	Lesser of 1.4 mg/kg/day or 100 mg/day	Lesser of 1.4 mg/kg/day or 100 mg/day
Vyvanse® (*lisdexamfetamine dimesylate*)	**60 mg**	**70 mg**
Second-Line/Adjunctive Agents — Short-Acting and Intermediate-Acting Preparations		
Dexedrine® (*dextroamphetamine sulphate*)	**40 mg**	**50 mg**
Dexedrine® Spansule (*dextroamphitamine sulphate*)	**40 mg**	**50 mg**
Ritalin® (*methylphenidate HCL*)	**60 mg**	**100 mg**
Ritalin® SR (*methylphenidate HCL*)	**60 mg**	**100 mg**
Generic Medications		
PMS® or **Ratio- methylphenidate**	**72 mg**	**100 mg**
Novo-MPH ER-C® (*methylphenidate*)	**54 mg**	**108 mg**

ADHD = attention deficit hyperactivity disorder; CAP-G = the Canadian ADHD Practice Guidelines; ER = extended-release; HCL = hydrochloride ; MPH = methylphenidate; SR = sustained release
* Per product monograph doses were reported in the CAP-G guidelines.

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