

**CONCERTA® (methylphenidate HCl) Extended-Release Oral Tablets**  
**18,27,36,54 mg**

**FULL PRESCRIBING INFORMATION**

**WARNING: DRUG DEPENDENCE**

**CONCERTA should be given cautiously to patients with a history of drug dependence or alcoholism. Chronic abusive use can lead to marked tolerance and psychological dependence with varying degrees of abnormal behavior. Frank psychotic episodes can occur, especially with parenteral abuse. Careful supervision is required during withdrawal from abusive use since severe depression may occur. Withdrawal following chronic therapeutic use may unmask symptoms of the underlying disorder that may require follow-up.**

**1 INDICATIONS AND USAGE**

CONCERTA is indicated for the treatment of Attention Deficit Hyperactivity Disorder (ADHD).

A diagnosis of Attention Deficit Hyperactivity Disorder (ADHD; DSM-IV) implies the presence of hyperactive-impulsive or inattentive symptoms that caused impairment and were present before age 7 years. The symptoms must cause clinically significant impairment, e.g., in social, academic, or occupational functioning, and be present in two or more settings, e.g., school (or work) and at home. The symptoms must not be better accounted for by another mental disorder. For the Inattentive Type, at least six of the following symptoms must have persisted for at least 6 months: lack of attention to details/careless mistakes; lack of sustained attention; poor listener; failure to follow through on tasks; poor organization; avoids tasks requiring sustained mental effort; loses things; easily distracted; forgetful. For the Hyperactive-Impulsive Type, at least six of the following symptoms must have persisted for at least 6 months: fidgeting/squirming; leaving seat; inappropriate running/climbing; difficulty with quiet activities; “on the go;” excessive talking; blurting answers; can’t wait turn; intrusive. The Combined Type requires both inattentive and hyperactive-impulsive criteria to be met.

**1.1 Special Diagnostic Considerations**

Specific etiology of this syndrome is unknown, and there is no single diagnostic test. Adequate diagnosis requires the use of medical and special psychological, educational, and social resources. Learning may or may not be impaired. The diagnosis must be based upon a complete history and evaluation of the patient and not solely on the presence of the required number of DSM-IV characteristics.

**1.2 Need for Comprehensive Treatment Program**

CONCERTA is indicated as an integral part of a total treatment program for ADHD

that may include other measures (psychological, educational, social). Drug treatment may not be indicated for all patients with ADHD. Stimulants are not intended for use in patients who exhibit symptoms secondary to environmental factors and/or other primary psychiatric disorders, including psychosis. Appropriate educational placement is essential and psychosocial intervention is often helpful. When remedial measures alone are insufficient, the decision to prescribe stimulant medication will depend upon the physician's assessment of the chronicity and severity of the patient's symptoms.

## 2 DOSAGE AND ADMINISTRATION

### 2.1 General Dosing Information

CONCERTA should be administered orally once daily in the morning with or without food.

CONCERTA must be swallowed whole with the aid of liquids, and must not be chewed, divided, or crushed [see *Patient Counseling Information (17)*].

### 2.2 Patients New to Methylphenidate

The recommended starting dose of CONCERTA for patients who are not currently taking methylphenidate or stimulants other than methylphenidate is 18 mg once daily for children and adolescents and 18 or 36 mg once daily for adults (see Table 1).

**Table 1. CONCERTA Recommended Starting Doses and Dose Ranges**

| <b>Patient Age</b>             | <b>Recommended Starting Dose</b> | <b>Dose Range</b>                             |
|--------------------------------|----------------------------------|-----------------------------------------------|
| Children 6-12 years of age     | 18 mg/day                        | 18 mg- 54 mg/day                              |
| Adolescents 13-17 years of age | 18 mg/day                        | 18 mg- 72 mg/day<br>not to exceed 2 mg/kg/day |
| Adults 18-65 years of age      | 18 or 36 mg/day                  | 18 mg- 72 mg/day                              |

### 2.3 Patients Currently Using Methylphenidate

The recommended dose of CONCERTA for patients who are currently taking methylphenidate twice daily or three times daily at doses of 10 to 60 mg/day is provided in Table 2. Dosing recommendations are based on current dose regimen and clinical judgment. Conversion dosage should not exceed 72 mg daily.

**Table 2. Recommended Dose Conversion from Methylphenidate Regimens to CONCERTA**

| <b>Previous Methylphenidate Daily Dose</b> | <b>Recommended CONCERTA Starting Dose</b> |
|--------------------------------------------|-------------------------------------------|
|--------------------------------------------|-------------------------------------------|

|                                                       |                    |
|-------------------------------------------------------|--------------------|
| 5 mg Methylphenidate twice daily or threetimes daily  | 18 mgevery morning |
| 10 mg Methylphenidate twice daily or threetimes daily | 36 mgevery morning |
| 15 mg Methylphenidate twice daily or threetimes daily | 54 mgevery morning |
| 20 mg Methylphenidate twice daily or threetimes daily | 72 mgevery morning |

Other methylphenidate regimens: Clinical judgment should be used when selecting the starting dose.

## 2.4 Dose Titration

Doses may be increased in 18 mg increments at weekly intervals for patients who have not achieved an optimal response at a lower dose. Daily dosages above 54 mg in children and 72 mg in adolescents have not been studied and are not recommended. Daily dosages above 72 mg in adults are not recommended.

A 27 mg dosage strength is available for physicians who wish to prescribe between the 18 mg and 36 mg dosages.

## 2.5 Maintenance/Extended Treatment

There is no body of evidence available from controlled trials to indicate how long the patient with ADHD should be treated with CONCERTA. It is generally agreed, however, that pharmacological treatment of ADHD may be needed for extended periods.

The effectiveness of CONCERTA for long-term use, i.e., for more than 7 weeks, has not

been systematically evaluated in controlled trials. The physician who elects to use CONCERTA for extended periods in patients with ADHD should periodically re-evaluate the long-term usefulness of the drug for the individual patient with trials off medication to assess the patient's functioning without pharmacotherapy. Improvement may be sustained when the drug is either temporarily or permanently discontinued.

## **2.6 Dose Reduction and Discontinuation**

If paradoxical aggravation of symptoms or other adverse events occur, the dosage should be reduced, or, if necessary, the drug should be discontinued.

If improvement is not observed after appropriate dosage adjustment over a one-month period, the drug should be discontinued.

## **3 DOSAGE FORMS AND STRENGTHS**

CONCERTA (methylphenidate HCl) Extended-Release Tablets are available in the following dosage strengths: 18 mg tablets are yellow and imprinted with "alza 18," 27 mg tablets are gray and imprinted with "alza 27," 36 mg tablets are white and imprinted with "alza 36," and 54 mg tablets are brownish-red and imprinted with "alza 54."

## **4 CONTRAINDICATIONS**

**4.1 Hypersensitivity to Methylphenidate** Hypersensitivity reactions, such as angioedema and anaphylactic reactions, have been observed in patients treated with CONCERTA . Therefore, CONCERTA is contraindicated in patients known to be hypersensitive to methylphenidate or other components of the product [*see Adverse Reactions (6.6)*].

### **4.2 Agitation**

CONCERTA is contraindicated in patients with marked anxiety, tension, and agitation, since the drug may aggravate these symptoms.

### **4.3 Glaucoma**

CONCERTA is contraindicated in patients with glaucoma.

### **4.4 Tics**

CONCERTA is contraindicated in patients with motor tics or with a family history or diagnosis of Tourette's syndrome [*see Adverse Reactions (6.4)*].

### **4.5 Monoamine Oxidase Inhibitors**

CONCERTA is contraindicated during treatment with monoamine oxidase (MAO) inhibitors, and also within a minimum of 14 days following discontinuation of a MAO inhibitor (hypertensive crises may result) [*see Drug Interactions (7.1)*].

## **5 WARNINGS AND PRECAUTIONS**

### **5.1 Serious Cardiovascular Events**

Sudden Death and Preexisting Structural Cardiac Abnormalities or Other Serious

## Heart Problems

### *Children and Adolescents*

Sudden death has been reported in association with CNS stimulant treatment at usual doses in children and adolescents with structural cardiac abnormalities or other serious heart problems. Although some serious heart problems alone carry an increased risk of sudden death, stimulant products generally should not be used in children or adolescents with known serious structural cardiac abnormalities, cardiomyopathy, serious heart rhythm abnormalities, or other serious cardiac problems that may place them at increased vulnerability to the sympathomimetic effects of a stimulant drug.

### *Adults*

Sudden deaths, stroke, and myocardial infarction have been reported in adults taking stimulant drugs at usual doses for ADHD. Although the role of stimulants in these adult cases is also unknown, adults have a greater likelihood than children of having serious structural cardiac abnormalities, cardiomyopathy, serious heart rhythm abnormalities, coronary artery disease, or other serious cardiac problems. Adults with such abnormalities should also generally not be treated with stimulant drugs.

## Hypertension and Other Cardiovascular Conditions

Stimulant medications cause a modest increase in average blood pressure (about 2 to 4 mmHg) and average heart rate (about 3 to 6 bpm) [*see Adverse Reactions (6.5)*], and individuals may have larger increases. While the mean changes alone would not be expected to have short-term consequences, all patients should be monitored for larger changes in heart rate and blood pressure. Caution is indicated in treating patients whose underlying medical conditions might be compromised by increases in blood pressure or heart rate, e.g., those with preexisting hypertension, heart failure, recent myocardial infarction, or ventricular arrhythmia.

### Assessing Cardiovascular Status in Patients Being Treated with Stimulant Medications

Children, adolescents, or adults who are being considered for treatment with stimulant medications should have a careful history (including assessment for a family history of sudden death or ventricular arrhythmia) and physical exam to assess for the presence of cardiac disease, and should receive further cardiac evaluation if findings suggest such disease (e.g., electrocardiogram and echocardiogram). Patients who develop symptoms such as exertional chest pain, unexplained syncope, or other symptoms suggestive of cardiac disease during stimulant treatment should undergo a prompt cardiac evaluation.

## **5.2 Psychiatric Adverse Events**

### Preexisting Psychosis

Administration of stimulants may exacerbate symptoms of behavior disturbance and thought disorder in patients with a preexisting psychotic disorder.

## Bipolar Illness

Particular care should be taken in using stimulants to treat ADHD in patients with comorbid bipolar disorder because of concern for possible induction of a mixed/manic episode in such patients. Prior to initiating treatment with a stimulant, patients with comorbid depressive symptoms should be adequately screened to determine if they are at risk for bipolar disorder; such screening should include a detailed psychiatric history, including a family history of suicide, bipolar disorder, and depression.

## Emergence of New Psychotic or Manic Symptoms

Treatment-emergent psychotic or manic symptoms, e.g., hallucinations, delusional thinking, or mania in patients without a prior history of psychotic illness or mania can be caused by stimulants at usual doses. If such symptoms occur, consideration should be given to a possible causal role of the stimulant, and discontinuation of treatment may be appropriate. In a pooled analysis of multiple short-term, placebo-controlled studies, such symptoms occurred in about 0.1% (4 patients with events out of 3482 exposed to methylphenidate or amphetamine for several weeks at usual doses) of stimulant-treated patients compared to 0 in placebo-treated patients.

### 5.3 Aggression

Aggressive behavior or hostility is often observed in patients with ADHD, and has been reported in clinical trials and the postmarketing experience of some medications indicated for the treatment of ADHD. Although there is no systematic evidence that stimulants cause aggressive behavior or hostility, patients beginning treatment for ADHD should be monitored for the appearance of or worsening of aggressive behavior or hostility.

### 5.4 Seizures

There is some clinical evidence that stimulants may lower the convulsive threshold in patients with prior history of seizures, in patients with prior EEG abnormalities in absence of seizures, and, very rarely, in patients without a history of seizures and no prior EEG evidence of seizures. In the presence of seizures, the drug should be discontinued.

### 5.5 Priapism

Prolonged and painful erections, sometimes requiring surgical intervention, have been reported with methylphenidate products, including CONCERTA, in both pediatric and adult patients [*see Adverse Reactions (6.6)*]. Priapism was not reported with drug initiation but developed after some time on the drug, often subsequent to an increase in dose. Priapism has also appeared during a period of drug withdrawal (drug holidays or during discontinuation). Patients who develop abnormally sustained or frequent and painful erections should seek immediate medical attention.

### 5.6 Peripheral Vasculopathy, including Raynaud's Phenomenon

Stimulants, including CONCERTA, used to treat ADHD are associated with peripheral

vasculopathy, including Raynaud's phenomenon. Signs and symptoms are usually intermittent and mild; however, very rare sequelae include digital ulceration and/or soft tissue breakdown. Effects of peripheral vasculopathy, including Raynaud's phenomenon, were observed in post-marketing reports at different times and at therapeutic doses in all age groups throughout the course of treatment. Signs and symptoms generally improve after reduction in dose or discontinuation of drug. Careful observation for digital changes is necessary during treatment with ADHD stimulants. Further clinical evaluation (e.g., rheumatology referral) may be appropriate for certain patients.

### **5.7 Long-Term Suppression of Growth**

Careful follow-up of weight and height in children ages 7 to 10 years who were randomized to either methylphenidate or nonmedication treatment groups over 14 months, as well as in naturalistic subgroups of newly methylphenidate-treated and nonmedication-treated children over 36 months (to the ages of 10 to 13 years), suggests that consistently medicated children (i.e., treatment for 7 days per week throughout the year) have a temporary slowing in growth rate (on average, a total of about 2 cm less growth in height and 2.7 kg less growth in weight over 3 years), without evidence of growth rebound during this period of development. Published data are inadequate to determine whether chronic use of amphetamines may cause similar suppression of growth; however, it is anticipated that they likely have this effect as well. Therefore, growth should be monitored during treatment with stimulants, and patients who are not growing or gaining height or weight as expected may need to have their treatment interrupted.

### **5.8 Visual Disturbance**

Difficulties with accommodation and blurring of vision have been reported with stimulant treatment.

### **5.9 Potential for Gastrointestinal Obstruction**

Because the CONCERTA tablet is nondeformable and does not appreciably change in shape in the GI tract, CONCERTA should not ordinarily be administered to patients with preexisting severe gastrointestinal narrowing (pathologic or iatrogenic, for example: esophageal motility disorders, small bowel inflammatory disease, "short gut" syndrome due to adhesions or decreased transit time, past history of peritonitis, cystic fibrosis, chronic intestinal pseudo-obstruction, or Meckel's diverticulum). There have been rare reports of obstructive symptoms in patients with known strictures in association with the ingestion of drugs in nondeformable controlled-release formulations. Due to the controlled-release design of the tablet, CONCERTA should be used only in patients who are able to swallow the tablet whole [*see Patient Counseling Information (17)*].

### **5.10 Hematologic Monitoring**

Periodic CBC, differential, and platelet counts are advised during prolonged therapy.

## 6 ADVERSE REACTIONS

The following are discussed in more detail in other sections of the labeling:

- Drug Dependence [see Box Warning]
- Hypersensitivity to Methylphenidate [see Contraindications (4.1)]
- Agitation [see Contraindications (4.2)]
- Glaucoma [see Contraindications (4.3)]
- Tics [see Contraindications (4.4)]
- Monoamine Oxidase Inhibitors [see Contraindications (4.5) and Drug Interactions (7.1)]
- Serious Cardiovascular Events [see Warnings and Precautions (5.1)]
- Psychiatric Adverse Events [see Warnings and Precautions (5.2)]
- Seizures [see Warnings and Precautions (5.3)]
- Priapism [see Warnings and Precautions (5.4)]
- Long-Term Suppression of Growth [see Warnings and Precautions (5.6)]
- Visual Disturbance [see Warnings and Precautions (5.7)]
- Potential for Gastrointestinal Obstruction [see Warnings and Precautions (5.8)]
- Hematologic Monitoring [see Warnings and Precautions (5.9)]

The most common adverse reaction in double-blind clinical trials (>5%) in pediatric patients (children and adolescents) was abdominal pain upper. The most common adverse reactions in double-blind clinical trials (>5%) in adult patients were decreased appetite, headache, dry mouth, nausea, insomnia, anxiety, dizziness, weight decreased, irritability, and hyperhidrosis [see Adverse Reactions (6.1)].

The most common adverse reactions associated with discontinuation ( $\geq 1\%$ ) from either pediatric or adult clinical trials were anxiety, irritability, insomnia, and blood pressure increased [see Adverse Reactions (6.3)].

The development program for CONCERTA included exposures in a total of 3906 participants in clinical trials. Children, adolescents, and adults with ADHD were evaluated in 6 controlled clinical studies and 11 open-label clinical studies (see Table 3). Safety was assessed by collecting adverse events, vital signs, weights, and ECGs, and by performing physical examinations and laboratory analyses.

**Table 3. CONCERTA Exposure in Double-Blind and Open-Label Clinical Studies**

| Patient Population | N    | Dose Range             |
|--------------------|------|------------------------|
| Children           | 2216 | 18 to 54 mg once daily |

|             |      |                         |
|-------------|------|-------------------------|
| Adolescents | 502  | 18 to 72 mg once daily  |
| Adults      | 1188 | 18 to 108 mg once daily |

Adverse events during exposure were obtained primarily by general inquiry and recorded by clinical investigators using their own terminology. Consequently, to provide a meaningful estimate of the proportion of individuals experiencing adverse events, events were grouped in standardized categories using MedDRA terminology.

The stated frequencies of adverse events represent the proportion of individuals who experienced, at least once, a treatment-emergent adverse event of the type listed. An event was considered treatment-emergent if it occurred for the first time or worsened while receiving therapy following baseline evaluation.

Throughout this section, adverse reactions are reported. Adverse reactions are adverse events that were considered to be reasonably associated with the use of CONCERTA based on the comprehensive assessment of the available adverse event information. A causal association for CONCERTA often cannot be reliably established in individual cases. Further, because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in clinical trials of another drug and may not reflect the rates observed in clinical practice.

The majority of adverse reactions were mild to moderate in severity.

## 6.1 Commonly Observed Adverse Reactions in Double-Blind, Placebo-Controlled Clinical Trials

Adverse reactions in either the pediatric or adult double-blind adverse reactions tables may be relevant for both patient populations.

### Children and Adolescents

Table 4 lists the adverse reactions reported in 1% or more of CONCERTA -treated children and adolescent subjects in 4 placebo-controlled, double-blind clinical trials.

**Table 4. Adverse Reactions Reported by  $\geq 1\%$  of CONCERTA -Treated Children and Adolescent Subjects in 4 Placebo-Controlled, Double-Blind Clinical Trials of CONCERTA**

| System/Organ Class<br>Adverse Reaction                      | CONCERTA<br>(n=321)<br>% | Placebo<br>(n=318)<br>% |
|-------------------------------------------------------------|--------------------------|-------------------------|
| <b>Gastrointestinal Disorders</b>                           |                          |                         |
| Abdominal pain upper                                        | 6.2                      | 3.8                     |
| Vomiting                                                    | 2.8                      | 1.6                     |
| <b>General Disorders and Administration Site Conditions</b> |                          |                         |
| Pyrexia                                                     | 2.2                      | 0.9                     |
| <b>Infections and Infestations</b>                          |                          |                         |
| Nasopharyngitis                                             | 2.8                      | 2.2                     |
| <b>Nervous System Disorders</b>                             |                          |                         |
| Dizziness                                                   | 1.9                      | 0                       |

**Psychiatric Disorders**

|           |     |     |
|-----------|-----|-----|
| Insomnia* | 2.8 | 0.3 |
|-----------|-----|-----|

**Respiratory, Thoracic and Mediastinal Disorders**

|       |     |     |
|-------|-----|-----|
| Cough | 1.9 | 0.9 |
|-------|-----|-----|

|                    |     |     |
|--------------------|-----|-----|
| Oropharyngeal pain | 1.2 | 0.9 |
|--------------------|-----|-----|

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\*Terms of Initial insomnia (CONCERTA®=0.6%) and Insomnia (CONCERTA®=2.2%) are combined into Insomnia.

The majority of adverse reactions were mild to moderate in severity.

**Adults**

Table 5 lists the adverse reactions reported in 1% or more of CONCERTA -treated adults in 2 placebo-controlled, double-blind clinical trials.

**Table 5. Adverse Reactions Reported by  $\geq 1\%$  of CONCERTA -Treated Adult Subjects in 2 Placebo-Controlled, Double-Blind Clinical Trials\***

| <b>System/Organ Class</b>                                   | <b>CONCERTA</b> | <b>Placebo</b> |
|-------------------------------------------------------------|-----------------|----------------|
| Adverse Reaction                                            | (n=415)         | (n=212)        |
|                                                             | %               | %              |
| <b>Cardiac Disorders</b>                                    |                 |                |
| Tachycardia                                                 | 4.8             | 0              |
| Palpitations                                                | 3.1             | 0.9            |
| <b>Ear and Labyrinth Disorders</b>                          |                 |                |
| Vertigo                                                     | 1.7             | 0              |
| <b>Eye Disorders</b>                                        |                 |                |
| Vision blurred                                              | 1.7             | 0.5            |
| <b>Gastrointestinal Disorders</b>                           |                 |                |
| Dry mouth                                                   | 14.0            | 3.8            |
| Nausea                                                      | 12.8            | 3.3            |
| Dyspepsia                                                   | 2.2             | 0.9            |
| Vomiting                                                    | 1.7             | 0.5            |
| Constipation                                                | 1.4             | 0.9            |
| <b>General Disorders and Administration Site Conditions</b> |                 |                |
| Iritability                                                 | 5.8             | 1.4            |
| <b>Infections and Infestations</b>                          |                 |                |
| Upper respiratory tract infection                           | 2.2             | 0.9            |
| <b>Investigations</b>                                       |                 |                |
| Weight decreased                                            | 6.5             | 3.3            |
| <b>Metabolism and Nutrition Disorders</b>                   |                 |                |
| Decreased appetite                                          | 25.3            | 6.6            |
| Anorexia                                                    | 1.7             | 0              |
| <b>Musculoskeletal and Connective Tissue Disorders</b>      |                 |                |
| Muscle tightness                                            | 1.9             | 0              |
| <b>Nervous System Disorders</b>                             |                 |                |
| Headache                                                    | 22.2            | 15.6           |
| Dizziness                                                   | 6.7             | 5.2            |
| Tremor                                                      | 2.7             | 0.5            |
| Paresthesia                                                 | 1.2             | 0              |
| Sedation                                                    | 1.2             | 0              |
| Tension headache                                            | 1.2             | 0.5            |
| <b>Psychiatric Disorders</b>                                |                 |                |
| Insomnia                                                    | 12.3            | 6.1            |
| Anxiety                                                     | 8.2             | 2.4            |
| Initial insomnia                                            | 4.3             | 2.8            |
| Depressed mood                                              | 3.9             | 1.4            |
| Nervousness                                                 | 3.1             | 0.5            |
| Restlessness                                                | 3.1             | 0              |
| Agitation                                                   | 2.2             | 0.5            |
| Aggression                                                  | 1.7             | 0.5            |
| Bruxism                                                     | 1.7             | 0.5            |
| Depression                                                  | 1.7             | 0.9            |
| Libido decreased                                            | 1.7             | 0.5            |
| Affect lability                                             | 1.4             | 0.9            |
| Confusional state                                           | 1.2             | 0.5            |
| Tension                                                     | 1.2             | 0.5            |
| <b>Respiratory, Thoracic and Mediastinal Disorders</b>      |                 |                |
| Oropharyngeal pain                                          | 1.7             | 1.4            |
| <b>Skin and Subcutaneous Tissue Disorders</b>               |                 |                |
| Hyperhidrosis                                               | 5.1             | 0.9            |

| System/Organ Class<br>Adverse Reaction | CONCERTA<br>(n=415)<br>% | Placebo<br>(n=212)<br>% |
|----------------------------------------|--------------------------|-------------------------|
|----------------------------------------|--------------------------|-------------------------|

\* Included doses upto 108 mg.

The majority of ADRs were mild to moderate in severity.

## 6.2 Other Adverse Reactions Observed in CONCERTA Clinical Trials

This section includes adverse reactions reported by CONCERTA -treated subjects in double-blind trials that do not meet the criteria specified for Table 4 or Table 5 and all adverse reactions reported by CONCERTA-treated subjects who participated in open-label and postmarketing clinical trials.

Blood and Lymphatic System Disorders: Leukopenia

Eye Disorders: Accommodation disorder, Dry eye

Vascular Disorders: Hot flush

Gastrointestinal Disorders: Abdominal discomfort, Abdominal pain, Diarrhea

General Disorders and Administrative Site Conditions: Asthenia, Fatigue, Feeling jittery, Thirst

Infections and Infestations: Sinusitis

Investigations: Alanine aminotransferase increased, Blood pressure increased, Cardiac murmur, Heart rate increased

Musculoskeletal and Connective Tissue Disorders: Muscle spasms

Nervous System Disorders: Lethargy, Psychomotor hyperactivity, Somnolence

Psychiatric Disorders: Anger, Hypervigilance, Mood altered, Mood swings, Panic attack, Sleep disorder, Tearfulness, Tic

Reproductive System and Breast Disorders: Erectile dysfunction

Respiratory, Thoracic and Mediastinal Disorders: Dyspnea

Skin and Subcutaneous Tissue Disorders: Rash, Rash macular

Vascular Disorders: Hypertension

### **6.3 Discontinuation Due to Adverse Reactions**

Adverse reactions in the 4 placebo-controlled studies of children and adolescents leading to discontinuation occurred in 2 CONCERTA patients (0.6%) including depressed mood (1, 0.3%) and headache and insomnia (1, 0.3%), and 6 placebo patients (1.9%) including headache and insomnia (1, 0.3%), irritability (2, 0.6%), headache (1, 0.3%), psychomotor hyperactivity (1, 0.3%), and tic (1, 0.3%).

In the 2 placebo-controlled studies of adults, 25 CONCERTA patients (6.0%) and 6 placebo patients (2.8%) discontinued due to an adverse reaction. Those events with an incidence of >0.5% in the CONCERTA patients included anxiety (1.7%), irritability (1.4%), blood pressure increased (1.0%), and nervousness (0.7%). In placebo patients, blood pressure increased and depressed mood had an incidence of >0.5% (0.9%).

In the 11 open-label studies of children, adolescents, and adults, 266 CONCERTA patients (7.0%) discontinued due to an adverse reaction. Those events with an incidence of >0.5% included insomnia (1.2%), irritability (0.8%), anxiety (0.7%), decreased appetite (0.7%), and tic (0.6%).

### **6.4 Tics**

In a long-term uncontrolled study (n=432 children), the cumulative incidence of new onset of tics was 9% after 27 months of treatment with CONCERTA .

In a second uncontrolled study (n=682 children) the cumulative incidence of new-onset tics was 1% (9/682 children). The treatment period was up to 9 months with mean treatment duration of 7.2 months.

### **6.5 Blood Pressure and Heart Rate Increases**

In the laboratory classroom clinical trials in children (Studies 1 and 2), both CONCERTA once daily and methylphenidate three times daily increased resting pulse by an average of 2 to 6 bpm and produced average increases of systolic and diastolic blood pressure of roughly 1 to 4 mm Hg during the day, relative to placebo. In the placebo-controlled adolescent trial (Study 4), mean increases from baseline in resting pulse rate were observed with CONCERTA and placebo at the end of the double-blind phase (5 and 3 beats/minute,

respectively). Mean increases from baseline in blood pressure at the end of the double-blind phase for CONCERTA<sup>3</sup> and placebo-treated patients were 0.7 and 0.7 mm Hg (systolic) and 2.6 and 1.4 mm Hg (diastolic), respectively. In one placebo-controlled study in adults (Study 6), dose-dependent mean increases of 3.9 to 9.8 bpm from baseline in standing pulse rate were observed with CONCERTA at the end of the double-blind treatment vs. an increase of 2.7 beats/minute with placebo. Mean changes from baseline in standing blood pressure at the end of double-blind treatment ranged from 0.1 to 2.2 mm Hg (systolic) and -0.7 to 2.2 mm Hg (diastolic) for CONCERTA and was 1.1 mm Hg (systolic) and -1.8 mm Hg (diastolic) for placebo. In a second placebo-controlled study in adults (Study 5), mean changes from baseline in resting pulse rate were observed for CONCERTA and placebo at the end of the double-blind treatment (3.6 and -1.6 beats/minute, respectively). Mean changes from baseline in blood pressure at the end of the double-blind treatment for CONCERTA and placebo-treated patients were -1.2 and -0.5 mm Hg (systolic) and 1.1

and 0.4 mm Hg (diastolic), respectively [see Warnings and Precautions (5.1)].

## 6.6 Postmarketing Experience

The following additional adverse reactions have been identified during postapproval use of CONCERTA . Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency:

**Blood and Lymphatic System Disorders:** Pancytopenia, Thrombocytopenia, Thrombocytopenic purpura

**Cardiac Disorders:** Angina pectoris, Bradycardia, Extrasystoles, Supraventricular tachycardia, Ventricular extrasystoles

**Eye Disorders:** Diplopia, Mydriasis, Visual impairment

**General Disorders:** Chest pain, Chest discomfort, Drug effect decreased, Hyperpyrexia, Therapeutic response decreased

**Hepatobiliary disorders:** Hepatocellular injury, Acute hepatic failure

**Immune System Disorders:** Hypersensitivity reactions such as Angioedema, Anaphylactic reactions, Auricular swelling, Bullous conditions, Exfoliative conditions, Urticarias, Pruritus NEC, Rashes, Eruptions, and Exanthemas NEC

**Investigations:** Blood alkaline phosphatase increased, Blood bilirubin increased, Hepatic enzyme increased, Platelet count decreased, White blood cell count abnormal

**Musculoskeletal, Connective Tissue and Bone Disorders:** Arthralgia, Myalgia, Muscle twitching, Rhabdomyolysis

**Nervous System Disorders:** Convulsion, Grand mal convulsion, Dyskinesia, Serotonin syndrome in combination with serotonergic drugs

**Psychiatric Disorders:** Disorientation, Hallucination, Hallucination auditory, Hallucination visual, Mania, Logorrhea, Libido changes

**Reproductive System and Breast Disorders:** Priapism  
**Skin and Subcutaneous Tissue Disorders:** Alopecia, Erythema

**Vascular Disorders:** Raynaud's phenomenon

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product.

Any suspected adverse events should be reported to the Ministry of Health according to the National Regulation by using an online form <https://sideeffects.health.gov.il/>

## **7 DRUG INTERACTIONS**

### **7.1 MAO Inhibitors**

CONCERTA should not be used in patients being treated (currently or within the preceding 2 weeks) with MAO inhibitors [see *Contraindications* (4.5)].

### **7.2 Vasopressor Agents**

Because of possible increases in blood pressure, CONCERTA should be used cautiously with vasopressor agents [see *Warnings and Precautions* (5.1)].

### **7.3 Coumarin Anticoagulants, Antidepressants, and Selective Serotonin Reuptake Inhibitors**

Human pharmacologic studies have shown that methylphenidate may inhibit the metabolism of coumarin anticoagulants, anticonvulsants (eg, phenobarbital, phenytoin, primidone), and some antidepressants (tricyclics and selective serotonin reuptake inhibitors). Downward dose adjustment of these drugs may be required when given concomitantly with methylphenidate. It may be necessary to adjust the dosage and monitor plasma drug concentrations (or, in the case of coumarin, coagulation times), when initiating or discontinuing concomitant methylphenidate.

### **7.4 Risperidone**

Combined use of methylphenidate with risperidone when there is a change, whether an increase or decrease, in dosage of either or both medications, may increase the risk of extrapyramidal symptoms (EPS). Monitor for signs of EPS.

## **8 USE IN SPECIFIC POPULATIONS**

### **8.1 Pregnancy**

#### **Pregnancy Category C**

Methylphenidate has been shown to have teratogenic effects in rabbits when given in doses of 200 mg/kg/day, which is approximately 100 times and 40 times the maximum recommended human dose on a mg/kg and mg/m<sup>2</sup> basis, respectively.

A reproduction study in rats revealed no evidence of harm to the fetus at oral doses up to 30 mg/kg/day, approximately 15-fold and 3-fold the maximum recommended human dose of CONCERTA<sup>®</sup> on a mg/kg and mg/m<sup>2</sup> basis, respectively. The approximate plasma exposure to methylphenidate plus its main metabolite PPAA in pregnant rats was 1-2 times that seen in trials in volunteers and patients with the maximum recommended dose of CONCERTA based on the AUC.

The safety of methylphenidate for use during human pregnancy has not been established.

There are no adequate and well-controlled studies in pregnant women. CONCERTA should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

#### Labor and Delivery

The effect of CONCERTA on labor and delivery in humans is unknown.

### **8.2 Nursing Mothers**

It is not known whether methylphenidate is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised if CONCERTA is administered to a nursing woman.

In lactating female rats treated with a single oral dose of 5 mg/kg radiolabeled methylphenidate, radioactivity (representing methylphenidate and/or its metabolites) was observed in milk and levels were generally similar to those in plasma.

### **8.3 Pediatric Use**

CONCERTA should not be used in children under six years, since safety and efficacy in this age group have not been established. Long-term effects of methylphenidate in children have not been well established.

### **8.4 Geriatric Use**

CONCERTA has not been studied in patients greater than 65 years of age.

## **9 DRUG ABUSE AND DEPENDENCE**

### **9.1 Controlled Substance**

Methylphenidate is a controlled substance under.

### **9.2 Abuse**

As noted in the Box Warning, CONCERTA<sup>®</sup> should be given cautiously to patients with a history of drug dependence or alcoholism. Chronic abusive use can lead to marked tolerance and psychological dependence with varying degrees of abnormal behavior. Frank psychotic episodes can occur, especially with parenteral abuse.

In two placebo-controlled human abuse potential studies, single oral doses of CONCERTA were compared to single oral doses of immediate-release methylphenidate (IR MPH) and placebo in subjects with a history of recreational stimulant use to assess relative abuse potential. For the purpose of this assessment, the response for each of the subjective measures was defined as the maximum effect within the first 8 hours after dose administration.

In one study (n=40), both CONCERTA (108 mg) and 60 mg IR MPH compared to

placebo produced statistically significantly greater responses on the five subjective measures suggestive of abuse potential. In comparisons between the two active treatments, however, CONCERTA<sup>®</sup> (108 mg) produced variable responses on positive subjective measures that were either statistically indistinguishable from (Abuse Potential, Drug Liking, Amphetamine, and Morphine Benzodrine Group [Euphoria]) or statistically less than (Stimulation – Euphoria) responses produced by 60 mg IR MPH.

In another study (n=49), both doses of CONCERTA (54 mg and 108 mg) and both doses of IR MPH (50 mg and 90 mg) produced statistically significantly greater responses compared to placebo on the two primary scales used in the study (Drug Liking, Euphoria). When doses of CONCERTA<sup>®</sup> (54 mg and 108 mg) were compared to IR MPH (50 mg and 90 mg), respectively, CONCERTA<sup>®</sup> produced statistically significantly lower subjective responses on these two scales than IR MPH. CONCERTA<sup>®</sup> (108 mg) produced responses that were statistically indistinguishable from the responses on these two scales produced by IR MPH (50 mg). Differences in subjective responses to the respective doses should be considered in the context that only 22% of the total amount of methylphenidate in CONCERTA<sup>®</sup> tablets is available for immediate release from the drug overcoat [see *System Components and Performance (11.1)*].

Although these findings reveal a relatively lower response to CONCERTA<sup>®</sup> on subjective measures suggestive of abuse potential compared to IR MPH at roughly equivalent total MPH doses, the relevance of these findings to the abuse potential of CONCERTA<sup>®</sup> in the community is unknown.

### **9.3 Dependence**

As noted in the Box Warning, careful supervision is required during withdrawal from abusive use since severe depression may occur. Withdrawal following chronic therapeutic use may unmask symptoms of the underlying disorder that may require follow-up.

## **10 OVERDOSAGE**

### **10.1 Signs and Symptoms**

Signs and symptoms of CONCERTA overdose, resulting principally from overstimulation of the CNS and from excessive sympathomimetic effects, may include the following: vomiting, agitation, muscle twitching, convulsion, grand mal convulsion, confusional state, hallucinations (auditory and/or visual), hyperhidrosis, headache, pyrexia, tachycardia, palpitations, heart rate increased, sinus arrhythmia, hypertension, rhabdomyolysis, mydriasis, and dry mouth.

### **10.2 Recommended Treatment**

Treatment consists of appropriate supportive measures. The patient must be protected against self-injury and against external stimuli that would aggravate overstimulation already present. Gastric contents may be evacuated by gastric lavage as indicated. Before performing gastric lavage, control agitation and seizures if present and protect the airway.

Other measures to detoxify the gut include administration of activated charcoal and a cathartic. Intensive care must be provided to maintain adequate circulation and respiratory exchange; external cooling procedures may be required for pyrexia.

Efficacy of peritoneal dialysis or extracorporeal hemodialysis for CONCERTA overdose has not been established.

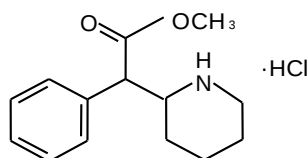
The prolonged release of methylphenidate from CONCERTA should be considered when treating patients with overdose.

### 10.3 Poison Control Center

As with the management of all overdose, the possibility of multiple-drug ingestion should be considered. The physician may wish to consider contacting a poison control center for up-to-date information on the management of overdose with methylphenidate.

## 11 DESCRIPTION

CONCERTA is a central nervous system (CNS) stimulant. CONCERTA is available in four tablet strengths. Each extended-release tablet for once-a-day oral administration contains 18, 27, 36, or 54 mg of methylphenidate HCl USP and is designed to have a 12-hour duration of effect. Chemically, methylphenidate HCl is d,l (racemic) methyl  $\alpha$ -phenyl-2-piperidineacetate hydrochloride. Its empirical formula is  $C_{14}H_{19}NO_2 \cdot HCl$ . Its structural formula is:



Methylphenidate HCl USP is a white, odorless crystalline powder. Its solutions are acid to litmus. It is freely soluble in water and in methanol, soluble in alcohol, and slightly soluble in chloroform and in acetone. Its molecular weight is 269.77.

CONCERTA also contains the following inert ingredients: butylated hydroxytoluene, carnauba wax, cellulose acetate, hypromellose, phosphoric acid, poloxamer, polyethylene oxides, povidone, sodium chloride, stearic acid, succinic acid, ferric synthetic iron oxides, Cellulose acetate, opadry yellow, opadry clear, opadry gray, opadry white, opadry red, opacode black

### 11.1 System Components and Performance

CONCERTA uses osmotic pressure to deliver methylphenidate HCl at a controlled rate.

The system, which resembles a conventional tablet in appearance, comprises an osmotically active trilayer core surrounded by a semipermeable membrane with an immediate-release drug overcoat. The trilayer core is composed of two drug layers containing the drug and excipients, and a push layer containing osmotically active components. There is a precision-laser drilled orifice on the drug-layer end of the tablet. In an aqueous environment, such as the gastrointestinal tract, the drug overcoat dissolves within one hour, providing an initial dose of methylphenidate. Water permeates through the membrane into the tablet core. As the osmotically active polymer excipients expand, methylphenidate is released through the orifice. The membrane controls the rate at which water enters the tablet core, which in turn controls drug delivery. Furthermore, the drug release rate from the system increases with time over a period of 6 to 7 hours due to the drug-concentration gradient incorporated into the two drug layers of CONCERTA. The biologically inert components of the tablet remain intact during gastrointestinal transit and are eliminated in the stool as a tablet shell along with insoluble core components. It is possible that CONCERTA extended-release tablets may be visible on abdominal x-rays under certain circumstances, especially when digital enhancing techniques are utilized.

## **12 CLINICAL PHARMACOLOGY**

### **12.1 Mechanism of Action**

Methylphenidate HCl is a central nervous system (CNS) stimulant. The mode of therapeutic action in Attention Deficit Hyperactivity Disorder (ADHD) is not known. Methylphenidate is thought to block the reuptake of norepinephrine and dopamine into the presynaptic neuron and increase the release of these monoamines into the extraneuronal space.

### **12.2 Pharmacodynamics**

Methylphenidate is a racemic mixture comprised of the d- and l-isomers. The d-isomer is more pharmacologically active than the l-isomer.

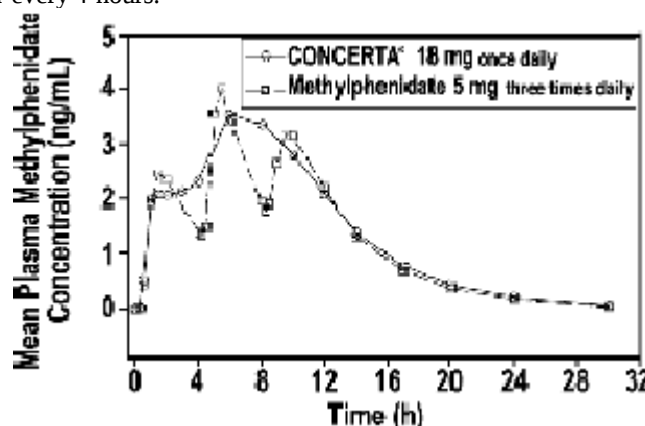
### **12.3 Pharmacokinetics**

#### **Absorption**

Methylphenidate is readily absorbed. Following oral administration of CONCERTA, plasma methylphenidate concentrations increase rapidly, reaching an initial maximum at about 1 hour, followed by gradual ascending concentrations over the next 5 to 9 hours, after which a gradual decrease begins. Mean times to reach peak plasma concentrations across all doses of CONCERTA occurred between 6 and 10 hours.

CONCERTA once daily minimizes the fluctuations between peak and trough concentrations associated with immediate-release methylphenidate three times daily (see Figure 1). The relative bioavailability of CONCERTA once daily and methylphenidate three times daily in adults is comparable.

**Figure 1.** Mean methylphenidate plasma concentrations in 36 adults, following a single dose of CONCERTA 18 mg once daily and immediate-release methylphenidate 5 mg three times daily administered every 4 hours.



The mean single-dose pharmacokinetic parameters in 36 healthy adults following the administration of CONCERTA 18 mg once daily and methylphenidate 5 mg three times daily are summarized in Table 6.

**Table 6. Pharmacokinetic Parameters (Mean  $\pm$  SD) After Single Dose in Healthy Adults**

| Parameters            | CONCERTA<br>(18 mg once daily)<br>(n=36) | Methylphenidate<br>(5 mg three times daily)<br>(n=35) |
|-----------------------|------------------------------------------|-------------------------------------------------------|
| $C_{max}$ (ng/mL)     | $3.7 \pm 1.0$                            | $4.2 \pm 1.0$                                         |
| $T_{max}$ (h)         | $6.8 \pm 1.8$                            | $6.5 \pm 1.8$                                         |
| $AUC_{inf}$ (ng•h/mL) | $41.8 \pm 13.9$                          | $38.0 \pm 11.0$                                       |
| $t_{1/2}$ (h)         | $3.5 \pm 0.4$                            | $3.0 \pm 0.5$                                         |

The pharmacokinetics of CONCERTA were evaluated in healthy adults following single- and multiple-dose administration (steady state) of doses up to 144 mg/day. The mean half-life was about 3.6 hours. No differences in the pharmacokinetics of CONCERTA were noted following single and repeated once-daily dosing, indicating no significant drug accumulation. The AUC and  $t_{1/2}$  following repeated once-daily dosing are similar to those following the first dose of CONCERTA in a dose range of 18 to 144 mg.

#### Dose Proportionality

Following administration of CONCERTA in single doses of 18, 36, and 54 mg/day to healthy adults,  $C_{max}$  and  $AUC_{(0-inf)}$  of d-methylphenidate were proportional to dose, whereas l-methylphenidate  $C_{max}$  and  $AUC_{(0-inf)}$  increased disproportionately with respect to dose. Following administration of CONCERTA, plasma concentrations of the l-isomer were approximately 1/40 the plasma concentrations of the d-isomer.

In healthy adults, single and multiple dosing of once-daily CONCERTA doses from 54 to 144 mg/day resulted in linear and dose-proportional increases in  $C_{\max}$  and  $AUC_{\text{inf}}$  for total methylphenidate (MPH) and its major metabolite,  $\alpha$ -phenyl-piperidine acetic acid (PPAA). There was no time dependency in the pharmacokinetics of methylphenidate. The ratio of metabolite (PPAA) to parent drug (MPH) was constant across doses from 54 to 144 mg/day, both after single dose and upon multiple dosing.

In a multiple-dose study in adolescent ADHD patients aged 13 to 16 administered their prescribed dose (18 to 72 mg/day) of CONCERTA, mean  $C_{\max}$  and  $AUC_{\text{TAU}}$  of d- and total methylphenidate increased proportionally with respect to dose.

### Distribution

Plasma methylphenidate concentrations in adults and adolescents decline biexponentially following oral administration. The half-life of methylphenidate in adults and adolescents following oral administration of CONCERTA<sup>®</sup> was approximately 3.5 hours.

### Metabolism and Excretion

In humans, methylphenidate is metabolized primarily by de-esterification to PPAA, which has little or no pharmacologic activity. In adults the metabolism of CONCERTA once daily as evaluated by metabolism to PPAA is similar to that of methylphenidate three times daily. The metabolism of single and repeated once-daily doses of CONCERTA is similar.

After oral dosing of radiolabeled methylphenidate in humans, about 90% of the radioactivity was recovered in urine. The main urinary metabolite was PPAA, accounting for approximately 80% of the dose.

### Food Effects

In patients, there were no differences in either the pharmacokinetics or the pharmacodynamic performance of CONCERTA when administered after a high-fat breakfast. There is no evidence of dose dumping in the presence or absence of food.

### Alcohol Effect

An *in vitro* study was conducted to explore the effect of alcohol on the release characteristics of methylphenidate from the CONCERTA<sup>®</sup> 18 mg tablet dosage form. At an alcohol concentration up to 40% there was no increased release of methylphenidate in the first hour. The results with the 18 mg tablet strength are considered representative of the other available tablet strengths.

## Special Populations

### *Gender*

In healthy adults, the mean dose-adjusted AUC<sub>(0-inf)</sub> values for CONCERTA were 36.7 ng•h/mL in men and 37.1 ng•h/mL in women, with no differences noted between the two groups.

### *Race*

In adults receiving CONCERTA, dose-adjusted AUC<sub>(0-inf)</sub> was consistent across ethnic groups; however, the sample size may have been insufficient to detect ethnic variations in pharmacokinetics.

### *Age*

Increase in age resulted in increased apparent oral clearance (CL/F) (58% increase in adolescents compared to children). Some of these differences could be explained by body-weight differences among these populations. This suggests that subjects with higher body weight may have lower exposures of total methylphenidate at similar doses.

The pharmacokinetics of CONCERTA have not been studied in children less than 6 years of age.

### *Renal Insufficiency*

There is no experience with the use of CONCERTA in patients with renal insufficiency. After oral administration of radiolabeled methylphenidate in humans, methylphenidate was extensively metabolized and approximately 80% of the radioactivity was excreted in the urine in the form of PPAA. Since renal clearance is not an important route of methylphenidate clearance, renal insufficiency is expected to have little effect on the pharmacokinetics of CONCERTA.

### *Hepatic Insufficiency*

There is no experience with the use of CONCERTA in patients with hepatic insufficiency.

## **13 NONCLINICAL TOXICOLOGY**

### **13.1 Carcinogenesis, Mutagenesis, and Impairment of Fertility**

#### **Carcinogenesis**

In a lifetime carcinogenicity study carried out in B6C3F1 mice, methylphenidate caused an increase in hepatocellular adenomas and, in males only, an increase in hepatoblastomas at a daily dose of approximately 60 mg/kg/day. This dose is approximately 30 times and 4 times the maximum recommended human dose of CONCERTA on a mg/kg and mg/m<sup>2</sup> basis, respectively. Hepatoblastoma is a relatively rare rodent malignant tumor type. There

was no increase in total malignant hepatic tumors. The mouse strain used is sensitive to the development of hepatic tumors, and the significance of these results to humans is unknown.

Methylphenidate did not cause any increases in tumors in a lifetime carcinogenicity study carried out in F344 rats; the highest dose used was approximately 45 mg/kg/day, which is approximately 22 times and 5 times the maximum recommended human dose of CONCERTA on a mg/kg and mg/m<sup>2</sup> basis, respectively.

In a 24-week carcinogenicity study in the transgenic mouse strain p53+/-, which is sensitive to genotoxic carcinogens, there was no evidence of carcinogenicity. Male and female mice were fed diets containing the same concentration of methylphenidate as in the lifetime carcinogenicity study; the high-dose groups were exposed to 60 to 74 mg/kg/day of methylphenidate.

#### Mutagenesis

Methylphenidate was not mutagenic in the *in vitro* Ames reverse mutation assay or the *in vitro* mouse lymphoma cell forward mutation assay. Sister chromatid exchanges and chromosome aberrations were increased, indicative of a weak clastogenic response, in an *in vitro* assay in cultured Chinese Hamster Ovary cells. Methylphenidate was negative *in vivo* in males and females in the mouse bone marrow micronucleus assay.

#### Impairment of Fertility

Methylphenidate did not impair fertility in male or female mice that were fed diets containing the drug in an 18-week Continuous Breeding study. The study was conducted at doses up to 160 mg/kg/day, approximately 80-fold and 8-fold the highest recommended human dose of CONCERTA on a mg/kg and mg/m<sup>2</sup> basis, respectively.

## 14 CLINICAL STUDIES

CONCERTA was demonstrated to be effective in the treatment of Attention Deficit Hyperactivity Disorder (ADHD) in 4 randomized, double-blind, placebo-controlled studies in children and adolescents and 2 double-blind placebo-controlled studies in adults who met the Diagnostic and Statistical Manual 4<sup>th</sup> edition (DSM-IV) criteria for ADHD.

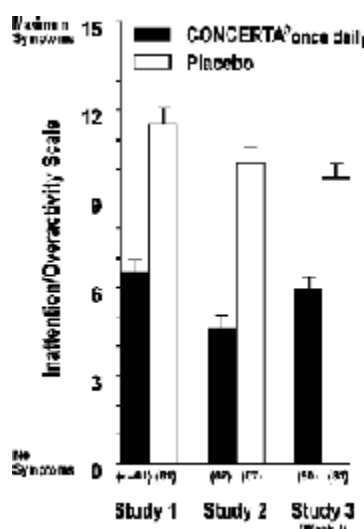
### 14.1 Children

Three double-blind, active- and placebo-controlled studies were conducted in 416 children aged 6 to 12 years. The controlled studies compared CONCERTA given once daily (18, 36, or 54 mg), methylphenidate given three times daily over 12 hours (15, 30, or 45 mg total daily dose), and placebo in two single-center, 3-week crossover studies (Studies 1

and 2) and in a multicenter, 4-week, parallel-group comparison (Study 3). The primary comparison of interest in all three trials was CONCERTA versus placebo.

Symptoms of ADHD were evaluated by community schoolteachers using the Inattention/Overactivity with Aggression (IOWA) Conners scale. Statistically significant reduction in the Inattention/Overactivity subscale versus placebo was shown consistently across all three controlled studies for CONCERTA. The scores for CONCERTA and placebo for the three studies are presented in Figure 2.

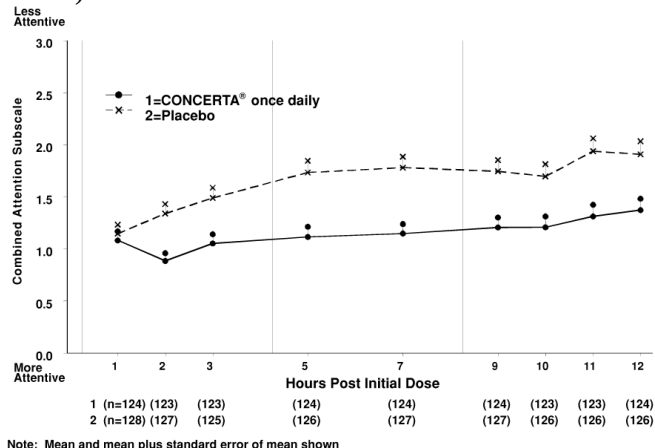
**Figure 2.** Mean Community School Teacher IOWA Conners Inattention/Overactivity Scores with CONCERTA once daily (18, 36, or 54 mg) and placebo. Studies 1 and 2 involved a 3-way crossover of 1 week per treatment arm. Study 3 involved 4 weeks of parallel-group treatments with a Last Observation Carried Forward analysis at week 4. Error bars represent the mean plus standard error of the mean.



In Studies 1 and 2, symptoms of ADHD were evaluated by laboratory schoolteachers using the SKAMP\* laboratory school rating scale. The combined results from these two studies demonstrated statistically significant improvements in attention and behavior in patients treated with CONCERTA versus placebo that were maintained through 12 hours after dosing. Figure 3 presents the laboratory schoolteacher SKAMP ratings for CONCERTA and placebo.

\*Swanson, Kotkin, Agler, M-Fynn, and Pelham

**Figure 3.** Laboratory School Teacher SKAMP Ratings: Mean (SEM) of Combined Attention (Studies 1 and 2)



## 14.2 Adolescents

In a randomized, double-blind, multicenter, placebo-controlled trial (Study 4) involving 177 patients, CONCERTA was demonstrated to be effective in the treatment of ADHD in adolescents aged 13 to 18 years at doses up to 72 mg/day (1.4 mg/kg/day). Of 220 patients who entered an open 4-week titration phase, 177 were titrated to an individualized dose (maximum of 72 mg/day) based on meeting specific improvement criteria on the ADHD Rating Scale and the Global Assessment of Effectiveness with acceptable tolerability. Patients who met these criteria were then randomized to receive either their individualized dose of CONCERTA (18 – 72 mg/day, n=87) or placebo (n=90) during a two-week double-blind phase. At the end of this phase, mean scores for the investigator rating on the ADHD Rating Scale demonstrated that CONCERTA was statistically significantly superior to placebo.

## 14.3 Adults

Two double-blind, placebo-controlled studies were conducted in 627 adults aged 18 to 65 years. The controlled studies compared CONCERTA administered once daily and placebo in a multicenter, parallel-group, 7-week dose-titration study (Study 5) (36 to 108 mg/day) and in a multicenter, parallel-group, 5-week, fixed-dose study (Study 6) (18, 36, and 72 mg/day).

Study 5 demonstrated the effectiveness of CONCERTA in the treatment of ADHD in adults aged 18 to 65 years at doses from 36 mg/day to 108 mg/day based on the change from baseline to final study visit on the Adult ADHD Investigator Rating Scale (AISRS). Of 226 patients who entered the 7-week trial, 110 were randomized to CONCERTA and 116 were randomized to placebo. Treatment was initiated at 36 mg/day and patients continued with incremental increases of 18 mg/day (36 to 108 mg/day) based on meeting specific improvement criteria with acceptable tolerability. At the final study visit, mean

change scores (LS Mean, SEM) for the investigator rating on the AISRS demonstrated that CONCERTA was statistically significantly superior to placebo.

Study 6 was a multicenter, double-blind, randomized, placebo-controlled, parallel-group, dose-response study (5-week duration) with 3 fixed-dose groups (18, 36, and 72 mg). Patients were randomized to receive CONCERTA administered at doses of 18 mg (n=101), 36 mg (n=102), 72 mg/day (n=102), or placebo (n=96). All three doses of CONCERTA were statistically significantly more effective than placebo in improving CAARS (Conners' Adult ADHD Rating Scale) total scores at double-blind end point in adult subjects with ADHD.

## **15 REFERENCES**

American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th ed. Washington, DC: American Psychiatric Association, 1994.

## **16 HOW SUPPLIED/STORAGE AND HANDLING**

CONCERTA (methylphenidate HCl) Extended-release Tablets are available in 18 mg, 27 mg, 36 mg, and 54 mg dosage strengths. The 18 mg tablets are yellow and imprinted with "alza 18". The 27 mg tablets are gray and imprinted with "alza 27". The 36 mg tablets are white and imprinted with "alza 36". The 54 mg tablets are brownish-red and imprinted with "alza 54". All four dosage strengths are supplied in bottles containing 100 tablets.

|       |                 |
|-------|-----------------|
| 18 mg | 30-count bottle |
| 27 mg | 30-count bottle |
| 36 mg | 30-count bottle |
| 54 mg | 30-count bottle |

### **Storage and Handling**

Store below 25°C; keep the bottle tightly closed. Keep out of the sight and reach of children.

## **17 Shelf life**

The expiry date of the product is indicated on the packaging materials.

18. **Registration holder:** J-C Heath Care Ltd., Kibbutz Shefayim, 6099000,  
Israel

Revised in September 2021 according to MOHs guidelines.