Olmesartan Medoxomil
In Children and Adolescents with Hypertension

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Abstract

Olmesartan medoxomil is an orally administered angiotensin II receptor antagonist, selective for the angiotensin II type 1 receptor, which has established antihypertensive efficacy in adults.

In children and adolescents with hypertension (n = 302), oral olmesartan medoxomil significantly and dose-dependently reduced seated systolic blood pressure (BP) and seated diastolic BP from baseline (the primary endpoint) in a 3-week, dose-response period in a well designed phase II/III clinical trial. Patients received olmesartan medoxomil high dose (20 or 40 mg once daily depending on bodyweight) or low dose (2.5 or 5.0 mg once daily depending on bodyweight). The response was significant for both cohorts, which were stratified by race (cohort A was mixed race [62% White] and cohort B was 100% Black).

In addition, BP control was maintained in olmesartan recipients relative to placebo recipients in cohort A and the combined cohort A + B, but not for patients in cohort B, during a placebo-controlled withdrawal period of this trial.

Oral olmesartan medoxomil was generally well tolerated in children and adolescents with hypertension. The majority of adverse events were of mild to moderate intensity.
Hypertension is being increasingly recognized in children and adolescents. Estimates of prevalence vary, but approximately 2–5% of children and adolescents in the US have hypertension.\(^{1-3}\) Hypertension may be primary (essential) hypertension, i.e. without an identifiable cause, or secondary hypertension, where there is an underlying cause or disease. Secondary hypertension is more common in children than it is in adults.\(^{4}\) Common causes of secondary hypertension in paediatric patients include renal parenchymal disease, renovascular disease and coarctation of the aorta.\(^{5}\)

In adults, hypertension is a well recognized risk factor for cardiovascular disease, including atherosclerosis, myocardial infarction, congestive heart failure, end-stage renal disease and stroke.\(^{6}\) In children, such cardiovascular sequelae are rarely observed. However, hypertension in childhood has been established as predictive of hypertension in adulthood and is associated with evidence of end-organ damage including left ventricular hypertrophy.\(^{1,4,6}\) In addition, high blood pressure (BP) is closely linked with obesity, and with the rise in childhood obesity, hypertension in children and adolescents is likely to be of increasing concern.\(^{4,6}\)

Paediatric hypertension is diagnosed based on systolic BP (SBP) and diastolic BP (DBP) percentiles according to the patient’s sex, age and height.\(^{4}\) Hypertension is defined as repeated measurements of SBP or DBP that are at or above the 95th percentile; BP measurements between the 90th and the 95th percentiles are classified as prehypertension. The goal of hypertension therapy is to reduce SBP and DBP to below the 95th percentile or to below the 90th percentile in patients with chronic renal disease, diabetes mellitus or hypertensive end-organ damage.\(^{4}\) Ideally, hypertension should be managed through diet and lifestyle changes. In particular, weight reduction is the primary treatment for obese children and adolescents.\(^{4}\) However, pharmacological intervention is indicated in some cases, including in symptomatic and secondary hypertension, where there is evidence of hypertensive end-organ damage and with concomitant diabetes. In addition, drug therapy may be required where diet and lifestyle modifications have failed.\(^{4}\)

Several classes of antihypertensive medication are available, including diuretics, ACE inhibitors, angiotensin II receptor antagonists (angiotensin II receptor blockers [ARBs]), \(^{6}\) \(\beta\)-adrenergic receptor antagonists (\(\beta\)-blockers) and calcium channel antagonists.\(^{4}\) In paediatric patients, the choice of the initial agent is dependent on underlying factors and the preference of the individual physician.\(^{4,7}\) For example, in paediatric patients with diabetes and microalbuminuria or proteinuric renal diseases, drugs acting on the renin-angiotensin-aldosterone system (RAAS), such as ACE inhibitors and ARBs, are preferred because of the ability of these agents to prevent progression to renal failure and prevent or delay diabetic nephropathy.\(^{4,7}\) Other agents may be more appropriate in the presence of other co-morbidities.

A step-wise algorithm approach has been suggested for the use of antihypertensive therapy in children.\(^{4,7}\) Initially, low-dose monotherapy in conjunction with nonpharmacological intervention should be tried, followed by increasing the monotherapy dose. If BP targets are not achieved, a second medication should be added, preferably with a complementary mechanism of action. Consideration should be given to the patient’s likelihood of compliance and the potential for adverse events with different therapies. In particular, therapies with recognized low adverse event profiles such as ACE inhibitors and ARBs may be useful in the paediatric population.\(^{7}\) New antihypertensive options for paediatric patients are therefore welcome additions to the physician’s arsenal.

Until recently, clinicians had to treat the paediatric hypertensive population based on data from adults.\(^{7}\) However, the US FDA Modernization Act (1997) led to several clinical trials of antihypertensive drugs in children and adolescents, providing information on dosing and safety in this population.\(^{7}\) One such therapeutic agent is olmesartan medoxomil (Benicar\(^{®}\)), which has been approved for use in children and adolescents aged 6–16 years.\(^{8}\) Olmesartan medoxomil is an ARB that has demonstrated antihypertensive efficacy and a good tolerability profile in adults.\(^{9}\) This review focuses on the pharmacology, therapeutic efficacy and tolerability of olmesartan medoxomil in children and adolescents.

Medical literature on the use of olmesartan medoxomil in paediatric hypertension was identified.
using MEDLINE and EMBASE, supplemented by AdisBase (a proprietary database). Additional references were identified from the reference list of published articles. Bibliographical information, including contributory unpublished data was also requested from the company developing the drug. Searches were last updated 8 November 2010.

1. Pharmacodynamic Profile

This section provides a brief overview of the pharmacodynamic properties of olmesartan medoxomil, which have been reviewed previously.\textsuperscript{[9-11]}

- Olmesartan medoxomil is a prodrug that is hydrolysed after oral administration to release olmesartan, a non-peptide, insurmountable ARB, which is selective for the angiotensin II type 1 (AT\textsubscript{1}) receptor.\textsuperscript{[9,12]} The binding affinity of olmesartan for the AT\textsubscript{1} receptor is over 12 500 times greater than its affinity for the angiotensin II type 2 receptor\textsuperscript{[8]} and is similar to or higher than that of other ARBs.\textsuperscript{[9,10]} The AT\textsubscript{1} receptor mediates the cardiovascular effects of angiotensin II, including vasoconstriction, salt and water retention, and aldosterone secretion.\textsuperscript{[9]}

- Olmesartan dose-dependently inhibited angiotensin II-induced responses \textit{in vitro} and \textit{in vivo}.\textsuperscript{[12]} These actions of olmesartan included antagonism of vasoconstriction in isolated guinea-pig aorta and inhibition of the pressor response in rats.\textsuperscript{[12]}

- In healthy volunteers, olmesartan medoxomil produced sustained AT\textsubscript{1} inhibition,\textsuperscript{[9]} as indicated by increased ambulatory plasma renin activity for 24 hours post-administration,\textsuperscript{[13,14]} reduced mean 24-hour urinary excretion of aldosterone,\textsuperscript{[14]} increased arterial compliance\textsuperscript{[14]} and lowered BP.\textsuperscript{[14,15]} BP was reduced in inverse proportion to plasma renin activity at baseline.\textsuperscript{[14]}

- The ability of olmesartan medoxomil to lower BP in adult patients with hypertension is well established;\textsuperscript{[9]} for data regarding its effects on BP in paediatric patients see section 3. In patients with hypertension who were on sodium-restricted diets, in addition to lowering BP, single doses of olmesartan medoxomil 5–80 mg also increased plasma angiotensin II levels and plasma renin activity.\textsuperscript{[16]}

- In addition, olmesartan medoxomil may protect against end-organ injury attributable to angiotensin II activity; this effect appears to be at least partially distinct from its ability to lower BP.\textsuperscript{[9]}

Angiotensin II is believed to be involved in several pathological processes, including atherosclerosis, fibrosis, renal injury, vascular microinflammation, oxidative stress, insulin resistance and tissue remodelling. In animal studies and clinical trials, olmesartan medoxomil reduced or reversed markers of angiotensin II-related end-organ damage.\textsuperscript{[9]}

2. Pharmacokinetic Profile

The pharmacokinetics of oral olmesartan medoxomil have been investigated in paediatric patients with hypertension\textsuperscript{[8,17,18]} and in adults, including healthy volunteers, patients with hypertension and patients with renal or hepatic impairment.\textsuperscript{[9,19]} In paediatric patients, the pharmacokinetics of olmesartan medoxomil have been studied in an open-label, single-dose pharmacokinetics trial.\textsuperscript{[17]} In this trial, patients aged 6–12 years (\(n = 10\)) and 13–16 years (\(n = 10\)) received olmesartan medoxomil 20 mg (patients with bodyweight \(<35\) kg) or 40 mg (patients with bodyweight \(\geq35\) kg).\textsuperscript{[17]} In paediatric patients, olmesartan medoxomil was administered orally, either as a tablet, or as an extemporaneous suspension formulation.\textsuperscript{[8]} Pharmacokinetic data in paediatric patients were supplemented by data from the manufacturer’s prescribing information\textsuperscript{[8]} and an FDA clinical pharmacology review.\textsuperscript{[18]}

- Olmesartan medoxomil is a prodrug that is absorbed in the gastrointestinal tract and rapidly and completely hydrolysed by esterases to the active metabolite, olmesartan.\textsuperscript{[8,9]}

- A single dose of olmesartan medoxomil extemporaneous suspension 10 mL \(\times 4\) mg/mL was bio-equivalent to a single dose of the tablet formulation of olmesartan medoxomil 40 mg in healthy adult volunteers.\textsuperscript{[18]}

- The absolute bioavailability of olmesartan is approximately 26\% and is unaffected by food.\textsuperscript{[8,19]}

- The pharmacokinetics of olmesartan were linear after oral administration of single doses of olmesartan medoxomil 10–160 mg in healthy adults,\textsuperscript{[19]} and steady-state concentrations were attained within 3–5 days with repeat administration in adults.\textsuperscript{[8]}
• Olmesartan medoxomil is rapidly absorbed after oral administration.\textsuperscript{17} Mean peak plasma olmesartan concentrations of 1227 ng/mL and 895 ng/mL were reached at means of 2.8 and 2.5 hours in children (aged 6–12 years) and adolescents (aged 13–16 years) with hypertension, following a single dose of olmesartan medoxomil 20 or 40 mg, depending on bodyweight.\textsuperscript{17} The respective mean area under the olmesartan plasma concentration-time curve (AUC) over the dosage interval values were 7874 and 5851 ng $\cdot$ h/mL.\textsuperscript{17}

• After a single oral dose of olmesartan medoxomil 20 or 40 mg (depending on bodyweight), the mean apparent volume of distribution values for olmesartan were 50.9 and 81.3 L in children (aged 6–12 years) and adolescents (aged 13–16 years).\textsuperscript{17} Olmesartan is 99% bound to plasma proteins.\textsuperscript{8}

• An increase in exposure to olmesartan results in linear decreases in BP in paediatric patients with hypertension.\textsuperscript{18} There was a significant (p < 0.00001) linear relationship between exposure (AUC) and response (change from baseline in seated SBP) in children and adolescents (aged 1–16 years) receiving olmesartan medoxomil in a randomized, double-blind trial\textsuperscript{18} (for a detailed description of the trial and efficacy results for patients aged 6–16 years see section 3). The shallow exposure-response relationship, where a 15-fold increase in exposure results in an approximate decrease in seated SBP of 7 mmHg, was similar to that observed in adults.\textsuperscript{18}

• Olmesartan clearance in paediatric patients increases with increasing bodyweight and clearance was similar to that observed in adult patients when adjusted for bodyweight.\textsuperscript{8} After oral administration of olmesartan medoxomil 20 or 40 mg (depending on bodyweight), mean apparent oral clearance values were 4.3 and 6.1 L/h in children (aged 6–12 years) and adolescents (aged 13–16 years).\textsuperscript{17} Renal clearance was approximately 0.5 L/h in paediatric patients.\textsuperscript{18}

• The primary route of elimination of olmesartan is hepatobiliary with the remainder excreted in the urine; in children, approximately 3–15% was recovered in the urine.\textsuperscript{18} Virtually no further metabolism occurs once olmesartan medoxomil is converted to olmesartan.\textsuperscript{8}

• Olmesartan has a mean elimination half-life of 8.4 hours in children (aged 6–12 years) and 9.1 hours in adolescents (aged 13–16 years).\textsuperscript{17} No accumulation of olmesartan in plasma has been observed with once-daily dosing in adults.\textsuperscript{8}

• Increased exposure to olmesartan was observed in adult patients with renal or hepatic impairment, although initial dosage adjustment is not required in adults with moderate to marked renal or hepatic impairment.\textsuperscript{8} Patients with renal impairment who are receiving olmesartan medoxomil therapy should be monitored for worsening renal function.

• In general, olmesartan has a low potential for pharmacokinetic drug interactions.\textsuperscript{8,9} Olmesartan is not metabolized by cytochrome P450 (CYP) isoenzymes and does not appear to affect these isoenzymes. Hence, olmesartan is unlikely to interact with drugs that are metabolized by, or are inhibitors or inducers of, CYP isoenzymes.\textsuperscript{8} Exposure to olmesartan was not significantly reduced by coadministration with aluminium magnesium hydroxide antacid,\textsuperscript{20} and coadministration of olmesartan medoxomil did not significantly affect the pharmacokinetics of warfarin,\textsuperscript{20} digoxin\textsuperscript{20} or other antihypertensive agents, including amlodipine,\textsuperscript{21,22} atenolol\textsuperscript{22} or hydrochlorothiazide.\textsuperscript{23}

### 3. Therapeutic Efficacy

The efficacy of oral olmesartan medoxomil in the treatment of hypertension in children and adolescents (aged 6–16 years) was investigated in a randomized, double-blind, multinational, phase II/III trial.\textsuperscript{24} Data have been published in full,\textsuperscript{24} additional data were obtained from the manufacturer’s prescribing information\textsuperscript{8} and an FDA clinical review.\textsuperscript{25} Patients aged 1–5 years, of any race, with a bodyweight of $\geq$5 kg ($n = 59$) were also enrolled;\textsuperscript{18} however, given that olmesartan medoxomil is not approved for use in patients aged $<6$ years, this cohort is not discussed further.

Patients enrolled in the trial had a bodyweight of $\geq$20 kg and were either being treated for hypertension or had hypertension as defined by a seated SBP measured at or above the 95th percentile for sex, age and height, or above the 90th percentile for patients with diabetes, glomerular kidney
disease or a family history of hypertension.[24] In addition, patients were required to have a creatinine clearance of >25 mL/min/1.73 m$^2$. Patients were excluded if they had malignant hypertension or were more than two standard deviations above the 99th percentile for seated SBP or DBP for age, sex and height. Patients who had any clinically significant medical condition or chronic disease were also excluded.

Enrolment was into one of two cohorts based on race.[24] Cohort A was a mixed race cohort (62% White, 18% Black, 10% Asian and 14% other races; patients could identify as belonging to more than one race) [n = 190] and cohort B was an all-Black cohort (n = 112). The mean ages were 12.2 and 12.5 years, the mean bodyweights were 73.4 and 67.2 kg, the mean body mass indices were 28.9 and 26.7 kg/m$^2$ and the percentage of patients with a family history of hypertension was 58.9% and 67.9% in cohorts A and B, respectively.

The trial consisted of a screening/washout period of up to 14 days, during which any medication for hypertension was discontinued, followed by two active treatment periods: a double-blind, dose-response period (period I) and a double-blind, placebo-controlled withdrawal period (period II).[24] In period I, patients were randomized to receive olmesartan medoxomil once daily as a pharmacist-prepared suspension, either low-dose (n = 95 [cohort A] and 56 [cohort B]) or high-dose (n = 95 [cohort A] and 56 [cohort B]) for 3 weeks. Low doses were 2.5 and 5.0 mg/day and high doses were 20 and 40 mg/day for patients with body-weights of <35 and ≥35 kg, respectively. After period I, patients were randomized to continue treatment with the same dosage of olmesartan medoxomil [n = 93 [cohort A] and 53 [cohort B]] or switch to placebo (n = 89 [cohort A] and 54 [cohort B]), for up to 2 weeks (period II). No dietary restrictions were reported.

A 46-week, open-label extension of this trial was also conducted.[25] In this extension period, patients in cohorts A (n = 179) and B (n = 104) received open-label olmesartan medoxomil (suspension or tablet formulation) starting at a dosage of 10 mg once daily (bodyweight <35 kg) or 20 mg once daily (bodyweight ≥35 kg). Dependent on response, the dose could then be titrated upwards or downwards (up to a maximum of double the initial dose). Additional antihypertensive medication (excluding ACE inhibitors and ARBs) was also allowed, if required.

The primary endpoint was the change from baseline in seated SBP and DBP to the end of period I, assessed as both non-weight-adjusted and weight-adjusted dose-response changes for cohorts A and B.[24] A linear regression model, with olmesartan medoxomil dose, or olmesartan medoxomil weight-adjusted dose, as the independent variable, was used to analyse the change in BP from baseline to the end of period I. Secondary endpoints included the change from baseline to endpoint in seated SBP and DBP in period II. Efficacy was assessed using the modified intent-to-treat (mITT) population, with last observation carried forward. The mITT population for period I was defined as all patients who received at least one dose of olmesartan medoxomil, had a baseline seated SBP measurement and at least one seated SBP measurement post-randomization, and for period II was defined as all patients who had a final seated SBP or DBP measurement after period I, received study medication during period II and had a seated SBP or DBP measurement at the end of period II. BP values were the mean of three measurements of trough BP taken at each visit. Baseline mean values for seated SBP/DBP are reported in figure 1.[24]

- Olmesartan medoxomil reduced BP in a dose-dependent manner in paediatric patients with hypertension. In period I, a significant olmesartan medoxomil dose response for seated SBP and DBP was observed in cohorts A (p = 0.0008 for seated SBP and 0.0026 for seated DBP) and B (p = 0.0032 and 0.0125) as analysed by linear regression (non-weight-adjusted data).[24] The mean changes in seated SBP/DBP from baseline to the end of period I (the primary endpoint) are shown in figure 1. The dose-response was also significant for the combined cohorts, A + B (p < 0.0001 for both seated SBP and DBP).
- A significant dose-response in period I was also observed for seated SBP and DBP when adjusted for baseline body weight in cohort A (p < 0.0001 for both seated SBP and DBP), cohort B (p = 0.0265
for seated SBP and 0.0084 for seated DBP) and the combined cohorts A + B (p < 0.0001 for both seated SBP and DBP).[24]

- In period II, the treatment effect of olmesartan medoxomil on seated SBP and DBP was main-
tained in patients continuing olmesartan medox-
omil treatment (cohorts A and A + B) relative to
placebo.[24] In cohort A, significant differences
between olmesartan medoxomil and placebo reci-
pients were seen in seated SBP (-3.6 mmHg; 
p = 0.0093)[24] and seated DBP (-3.5 mmHg; 
p = 0.0052).[25] The mean changes from baseline
in seated SBP and DBP for olmesartan and placebo recipients are shown in figure 1. The difference
between olmesartan medoxomil and placebo in the
combined cohorts A + B was also significant for
seated SBP (-3.2 mmHg; p = 0.0029)[24] and seated
DBP (-2.8 mmHg; p = 0.0032).[26,25]

- The difference between olmesartan medoxo-
mil and placebo recipients in the change from
baseline in both seated SBP and DBP was not
significant for cohort B in period II.[24] The mean

changes from baseline in seated SBP and DBP for
olmesartan and placebo recipients in cohort B are
shown in figure 1. This lack of significance in
cohort B was attributed to the small population
size, but was also suggested as potentially due to a
reduced responsiveness to RAAS modulators, as
has been observed in Black adults.[24]

- During the 46-week, open-label, extension pe-
riod, at all visits there were reductions from study
baseline in seated SBP and DBP. Across all study
visits, seated SBP reductions were 11.1–12.7, 
7.5–13.1 and 10.2–12.9 mmHg in cohorts A, B and 
A + B, respectively.[25] Respective seated DBP re-
ductions were 7.3–9.8, 5.2–8.2 and 6.6–9.2 mmHg.
However, no statistical analysis was performed.

4. Tolerability

The tolerability of olmesartan medoxomil oral
suspension in paediatric patients was evaluated in the
double-blind, dose-response phase II/III trial
discussed in section 3.[24] In period I of this trial,
patients (n=302) received high or low doses of olmesartan medoxomil based on weight; low doses were 2.5 and 5.0 mg once daily and high doses were 20 and 40 mg once daily for patients with bodyweights of <35 and ≥35 kg, respectively. In period II, patients continued with the same dosage of olmesartan medoxomil (n=146) or switched to placebo (n=143). In an open-label extension period of this trial, patients (n=283) received olmesartan medoxomil 10–40 mg once daily.[25] Additional data from this trial were obtained from an FDA clinical review.[25]

- Olmesartan medoxomil oral suspension was generally well tolerated in children and adolescents (aged 6–16 years) with hypertension in this trial and had an adverse event profile similar to that observed in adult patients.[24]

- The majority of treatment-emergent adverse events reported in the trial were mild or moderate in intensity.[24] In period I, 43.2% and 47.4% (cohort A) and 33.9% and 28.6% (cohort B) of patients in the low- and high-dose olmesartan medoxomil groups reported at least one adverse event.[24] In period II, 35.5% versus 30.3% (cohort A) and 13.2% versus 14.8% (cohort B) of patients in the olmesartan medoxomil and placebo groups reported at least one adverse event.[24] In the 46-week extension period, 71.9% and 54.4% of olmesartan medoxomil recipients in cohorts A and B experienced a treatment-emergent adverse event.[25]

- The treatment-emergent adverse event that occurred most frequently was headache.[24] In period I, 7.4% (cohort A, low dose), 14.7% (cohort A, high dose), 5.4% (cohort B, low dose) and 8.9% (cohort B, high dose) of patients experienced headache.[24] Headache was also the most common treatment-emergent adverse event in period II.[24] In addition, other common (incidence of >5% of patients in either cohort) treatment-emergent adverse events in period I in cohorts A and B were dizziness (5.8% and 0.9%) [9.5% in cohort A, high dose][24] and upper respiratory tract infection (5.8% and 1.8%).[25]

- Adverse events considered possibly, probably or definitely related to olmesartan medoxomil treatment in period I of the trial included headache (n=5 [cohort A] and 1 [cohort B]), dizziness (n=4 [cohort A]) and tachycardia, diarrhoea, hypoaesthesia and insomnia (all n=1 [cohort A]).[24] In period II, three patients in the olmesartan medoxomil group and two patients in the placebo group in cohort A experienced an adverse event considered possibly, probably or definitely related to treatment (these included hyperkalaemia, headache and dizziness), and in cohort B, one patient in the olmesartan medoxomil group had renal impairment and moderate hypotension.[24,25]

- Serious treatment-emergent adverse events were reported in 6.3% and 3.6% of patients (23 and 8 events) in cohorts A and B, respectively during the trial, including in the 46-week open-label extension period.[25] One of these, a relapse of systemic lupus erythematosus (SLE) that occurred in the extension period, was considered possibly related to treatment.

- In total, five patients discontinued because of adverse events. Two olmesartan medoxomil recipients in period I discontinued the trial because of moderate hypertension and moderate hypoaesthesia, respectively.[24] The latter adverse event was considered possibly related to treatment. In period II, only one patient (in the placebo group) discontinued because of an adverse event. Two patients in the extension period discontinued because of a metabolic disorder and an SLE relapse, respectively.[25]

- Olmesartan medoxomil treatment was not generally associated with any clinically relevant changes in laboratory parameters.[24,25] As observed in adults, small decreases in haemoglobin and haematocrit values and increases in serum potassium levels occurred in paediatric patients receiving olmesartan medoxomil, but these changes were not considered significant.[25]

- One year of olmesartan medoxomil treatment did not appear to have any effect on growth or development in paediatric patients.[25] In general, increases in height and weight were age-appropriate and olmesartan medoxomil did not negatively affect development as assessed by school performance.

### 5. Dosage and Administration

Oral olmesartan medoxomil may be used as monotherapy or in combination with other
agents for the treatment of hypertension in children and adolescents aged 6–16 years.\[^8\] As in adults, the dosage of olmesartan medoxomil should be individualized in paediatric patients. The recommended starting dosage is 10 mg once daily for children and adolescents with a bodyweight range of 20 to <35 kg and 20 mg once daily for children and adolescents with bodyweight \( \geq 35 \) kg. After 2 weeks of therapy, if further BP reduction is necessary, the dosage may be increased to a maximum of 20 mg once daily for those with a bodyweight of 20 to <35 kg and 40 mg once daily for those with a bodyweight of \( \geq 35 \) kg.

Olmesartan medoxomil is supplied as 5, 20 and 40 mg tablets and an extemporaneous suspension can be prepared for children who are unable to swallow tablets.\[^8\] For full details on the preparation of this suspension see the manufacturer’s prescribing information.\[^8\]

The use of all drugs that act on the RAAS, including olmesartan medoxomil, should be avoided in pregnancy because of the risk to the developing fetus. The US prescribing information for olmesartan medoxomil contains a ‘black box’ warning regarding this.

The manufacturer’s prescribing information should be consulted for detailed information including warnings and precautions and use in special populations.

6. Olmesartan Medoxomil: Current Status in Children and Adolescents with Hypertension

Olmesartan medoxomil is approved in the US for the treatment of hypertension in children and adolescents aged 6–16 years.\[^8\] The BP-lowering efficacy of olmesartan medoxomil was demonstrated in a 5-week, double-blind, dose-response trial in patients aged 6–16 years with hypertension.\[^24\] Olmesartan medoxomil was generally well tolerated in this trial.\[^8,24\]

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References


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