



**Importation of United States-labelled
Colesevelam Hydrochloride 625 mg Tablets
due to the current shortage of Canadian-authorized
Colesevelam Hydrochloride 625 mg Tablets**

Glenmark Pharmaceuticals Canada Inc.

1600 Steeles Ave. W, Suite 407,
Concord, ON, L4K 4M2 Canada

Date: March 13, 2024

Dear Wholesalers, healthcare professionals, pharmacists and customers.

There is a critical shortage of Colesevelam Hydrochloride Tablets, 625 mg in Canada. To help *mitigate* the shortage, Health Canada has permitted the exceptional, temporary importation and sale of Glenmark Pharmaceuticals US-labelled Colesevelam Hydrochloride Tablets, 625 mg with English *language labels*.

Health Canada has accepted the addition of Glenmark Pharmaceutical's product to the [List of drugs for exceptional importation and sale](#).

In Canada, Colesevelam Hydrochloride Tablets, 625 mg is indicated for the reduction of cholesterol blood level in patients with hypercholesterolemia (Fredrickson Type IIa) as an adjunct to diet and lifestyle changes, when the response to these measures has been inadequate, in patients; who are not adequately controlled with an HMG-CoA reductase inhibitor (statin) alone, or; who are unable to tolerate a statin.

The *US-labelled* product has the **same** *active ingredient, strength, dosage form, route of administration, product formulation, indications, dosage and administration instructions* as the Canadian-authorized products.

The product, however, differs in the following ways:

Tablet description as per the authorized product labelling	LODALIS Bausch Health, Canada Inc. DIN 02373955	APO-COLESEVELAM Apotex Inc. DIN 02494051	Colesevelam Hydrochloride Tablets Glenmark Pharmaceuticals Inc., USA NDC 68462-433-90 NDC 68462-433-18
	Off white, capsule-shaped, film-coated tablets imprinted with "LODALIS" on one side.	<i>White to off white, oval, biconvex coated tablet. Engraved "APO" on one side, "C625" on the other side.</i>	<i>Off-white to pale yellow, capsule shaped, biconvex film-coated tablets imprinted with 'G433' on one side and plain on the other side.</i>
Non-medicinal ingredients as per the authorized product labelling	Microcrystalline Cellulose, Colloidal Anhydrous Silica, Magnesium Stearate, Water, Hypromellose, Diacetylated Monoglycerides, Iron Oxide Black, Propylene Glycol	Magnesium stearate, Microcrystalline Cellulose, Silicon Dioxide, Diacetylated Monoglycerides, Hypromellose	Microcrystalline Cellulose, Colloidal Anhydrous Silica, Magnesium Stearate, Water, Hypromellose, Diacetylated Monoglycerides, Iron Oxide Black, Propylene Glycol, <i>Pregelatinized Starch, Methylene chloride</i>
storage condition as per the authorized product labelling	<i>Store at room temperature 15-30° C.</i> <i>Protect from moisture.</i>	<i>Store at room temperature 15°C to 30°C.</i> <i>Protect from moisture.</i>	<i>Store at 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F) [see USP Controlled Room Temperature].</i> <i>Protect from moisture and store in a dry place.</i> <i>Keep tablets in original/pharmacy container.</i>

The US-labelled product can be used in the same manner as the Canadian-authorized products. Health care professionals should refer to the Canadian Product Monograph for APO-COLESEVELAM available in English and French on the Drug Product Database, as a suitable Canadian reference label. The database contains information on the appropriate use of the product, including the:

- Indications
- Contraindications
- Warnings and precautions
- Adverse reactions
- Dosage and administration
- Storage conditions
- Handling instructions

Information on the imported product

Brand name	Dosage form, strength and route of administration	Product description and packaging	Country of authorization and identifying code	Authorization holder	DEL holder/ Importer in Canada
Colesevelam Hydrochloride Tablets	Film-coated Tablets; 625 mg; Oral	Each film-coated tablet contains 625 mg colesevelam hydrochloride. Available in Bottles of 90 & 180 tablets with child resistant closure.	90's Bottles: NDC 68462-433-90 180's Bottles: NDC 68462-433-18	Glenmark Pharmaceuticals Inc., USA	Glenmark Pharmaceuticals Canada Inc.

Information about US-*labelled* Colesevelam hydrochloride 625 mg tablets for health care professionals is available for reference in English at www.glenmarkpharma-us.com.

The US-labelled Colesevelam hydrochloride 625 mg tablets is available in 90's and 180's Bottle pack; wherein patient information leaflet is glued on bottle cap. Images of the US-labelled product can be found in the Appendix.

Health care professionals are advised that aspects of the outer labels and packaging of the US-labelled product may differ from marketed *Colesevelam hydrochloride 625 mg tablets* products in Canada. **Proper selection of the intended product must be verified to avoid confusion with other products and prevent medication errors.**

The US-labelled product does not have a drug identification number (DIN) or a barcode that scans in medication management systems in Canada. A

facility-generated sticker may be required to enable barcode scanning and allow the product being dispensed and administered to be properly identified.

Reporting adverse drug reactions

Adverse drug reactions associated with the use of Colesevelam Hydrochloride Tablets, 625 mg should be reported to Glenmark Pharmaceuticals Canada Inc., *by calling at* 1-844-801-7468 or to Health Canada or by calling toll-free at 1-866-234-2345.

Questions or concerns

For questions or concerns about US-labelled *Colesevelam hydrochloride 625 mg tablets*, please contact Glenmark Pharmaceuticals Canada Inc., by calling at 1-844-801-7468.

Appendix

- Images of the foreign inner and outer labels and image of the foreign product.
- For foreign inner and outer labels that are **not** in French, the French-translated label text in the French version of the Glenmark letter in a condensed layout, and including brief text identifying the French-translated label text.

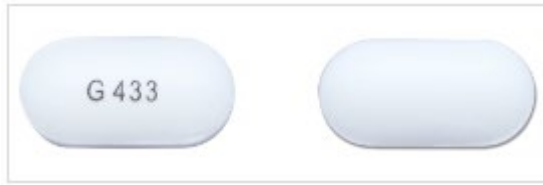


Image of tablet

SAME SIZE ARTWORK
JAR SIZE: 250 CC
 LABEL SIZE: 130 mm x 55 mm



MINIMUM FONT SIZE: 6 pt

Image of Label for 90s tablet Bottle Pack (Outer label)



Image of Label for 180s tablet Bottle Pack (Outer label)



Image of 180s tablet Bottle Pack (front view)

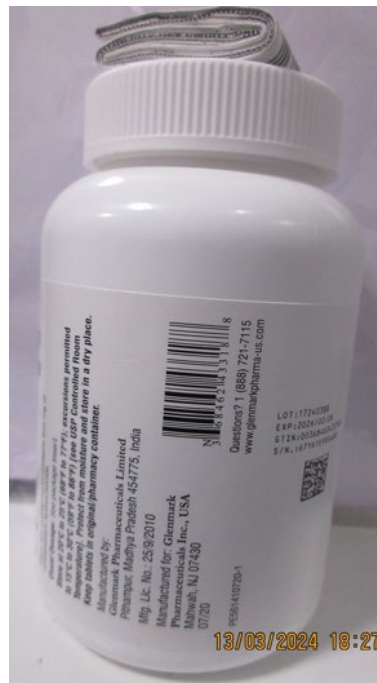


Image of 180s tablet Bottle Pack (Back view)



HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use COLESEVELAM HYDROCHLORIDE TABLETS safely and effectively. See full prescribing information for COLESEVELAM HYDROCHLORIDE TABLETS.

COLESEVELAM HYDROCHLORIDE tablets, for oral use
Initial U.S. Approval: 2000

INDICATIONS AND USAGE

- Colesevelam hydrochloride tablets are a bile acid sequestrant indicated as an adjunct to diet and exercise to:
- reduce elevated low-density lipoprotein cholesterol (LDL-C) in adults with primary hyperlipidemia (1.1).
 - reduce LDL-C levels in boys and postmenarchal girls, 10 to 17 years of age, with heterozygous familial hypercholesterolemia (HeFH), unable to reach LDL-C target levels despite an adequate trial of diet and lifestyle modification (1.1).
 - improve glycemic control in adults with type 2 diabetes mellitus (1.2).
- Limitations of Use (1.3):
- Do not use for treatment of type 1 diabetes or for diabetic ketoacidosis.
 - Not studied in Fredrickson Type I, III, IV, and V dyslipidemias.

DOSE AND ADMINISTRATION

- Obtain lipid parameters, including serum triglyceride (TG) levels, before starting colesevelam hydrochloride tablets (2.1).
- The recommended dosage for adults and for boys and postmenarchal girls is 3.75 grams daily. The recommended dosage for adults with type 2 diabetes mellitus is 3.75 grams daily. Colesevelam hydrochloride tablets should be taken as follows (2.2, 2.4): Take 6 tablets once daily or 3 tablets twice daily with a meal and liquid.

DOSE FORMS AND STRENGTHS

- Tablets: 625 mg (3)

CONTRAINDICATIONS

- Patients with serum triglyceride levels >500 mg/dL (4).
- Patients with a history of hypertriglyceridemia-induced pancreatitis (4).
- Patients with a history of bowel obstruction (4).

WARNINGS AND PRECAUTIONS

- **Hypertriglyceridemia and Pancreatitis:** Colesevelam hydrochloride can increase TG. Hypertriglyceridemia can cause acute pancreatitis. Monitor lipids, including TG. Instruct patients to discontinue colesevelam hydrochloride and seek prompt medical attention if the symptoms of acute pancreatitis occur (5.1).
- **Gastrointestinal Obstruction:** Cases of bowel obstruction have occurred. Colesevelam hydrochloride is not recommended in patients with gastroparesis, other gastrointestinal motility disorders, and in those who have had major gastrointestinal tract surgery and who may be at risk for bowel obstruction (5.2).
- **Vitamin K or Fat-Soluble Vitamin Deficiencies:** Colesevelam hydrochloride may decrease absorption of fat-soluble vitamins. Patients with a susceptibility to deficiencies of vitamin K (e.g., patients on warfarin, patients with malabsorption syndromes) or other fat-soluble vitamins may be at increased risk. Patients on oral vitamin supplementation should take their vitamins at least 4 hours prior to colesevelam hydrochloride (5.3).
- **Drug Interactions:** Due to the potential for decreased absorption of other drugs that have not been tested for interaction, consider administering at least 4 hours prior to colesevelam hydrochloride (5.4, 7, 12.3).

ADVERSE REACTIONS

In clinical trials, the most common (incidence $\geq 2\%$ and greater than placebo) adverse reactions with colesevelam hydrochloride included constipation, dyspepsia, and nausea (6.1).

To report SUSPECTED ADVERSE REACTIONS, contact Glenmark Pharmaceuticals Inc., USA at 1 (888) 721-7115 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DRUG INTERACTIONS

Concomitant use with colesevelam hydrochloride may decrease the exposure of the following drugs: Drugs with a narrow therapeutic index (e.g., cyclosporine), phenytoin, thyroid hormone replacement therapy, warfarin, oral contraceptives containing ethinyl estradiol and norethindrone, olmesartan medoxomil, and sulfonyleureas (glimepiride, glipizide, glyburide). Administer these drugs 4 hours prior to colesevelam hydrochloride. For patients on warfarin, monitor International Normalized Ratio (INR) frequently during initiation then periodically (7.1).
Concomitant use with colesevelam hydrochloride may increase the exposure of the following drugs: Metformin extended release. Monitor patients' glycemic control (7.2).

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Revised: 03/2023

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*Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

1.1 Primary Hyperlipidemia

Colesevelam hydrochloride tablets are indicated as an adjunct to diet and exercise to reduce elevated low-density lipoprotein cholesterol (LDL-C) in adults with primary hyperlipidemia.

Colesevelam hydrochloride tablets are indicated to reduce LDL-C levels in boys and postmenarchal girls, 10 to 17 years of age, with heterozygous familial hypercholesterolemia (HeFH) who are unable to reach LDL-C target levels despite an adequate trial of dietary therapy and lifestyle modification.

1.2 Type 2 Diabetes Mellitus

Colesevelam hydrochloride tablets are indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus.

1.3 Limitations of Use

- Colesevelam hydrochloride tablets should not be used for the treatment of type 1 diabetes or for the treatment of diabetic ketoacidosis.
- Colesevelam hydrochloride tablets have not been studied in Fredrickson Type I, III, IV, and V dyslipidemias.

2 DOSAGE AND ADMINISTRATION

2.1 Testing Prior to Initiation of Colesevelam Hydrochloride Tablets

Obtain lipid parameters, including triglyceride (TG) levels, before starting colesevelam hydrochloride tablets. Colesevelam hydrochloride tablets are contraindicated in patients with TG levels >500 mg/dL. See **Contraindications (4)** and **Warnings and Precautions (5.1)**.

2.2 Recommended Dosage in Primary Hyperlipidemia and Type 2 Diabetes Mellitus

The recommended dosage of colesevelam hydrochloride tablets for adults and for boys and postmenarchal girls aged 10 to 17 years with primary hyperlipidemia is 3.75 grams daily. The recommended dosage of colesevelam hydrochloride tablets for adults with type 2 diabetes mellitus is 3.75 grams daily. Colesevelam hydrochloride tablets should be taken as follows:

Take 6 tablets once daily or 3 tablets twice daily. Due to tablet size, colesevelam hydrochloride for oral suspension is recommended for use in the pediatric population.

2.3 Important Dosing Information for Primary Hyperlipidemia

Colesevelam hydrochloride tablets can be dosed at the same time as a statin, or colesevelam hydrochloride tablets and the statin can be dosed apart. Monitor lipid levels within 4 to 6 weeks after initiation of colesevelam hydrochloride tablets.

2.4 Administration Instructions

Take colesevelam hydrochloride tablets with a meal and liquid. For patients with difficulty swallowing tablets, use colesevelam hydrochloride for oral suspension. See **Warnings and Precautions (5.2)**.

3 DOSAGE FORMS AND STRENGTHS

- 625 mg tablets are off-white to pale yellow, capsule shaped, biconvex film-coated, imprinted with "64230" on one side and plain on the other side.

4 CONTRAINDICATIONS

Colesevelam hydrochloride tablets are contraindicated in patients with:

- Serum TG concentrations >500 mg/dL. See **Warnings and Precautions (5.1)**
- History of hypertriglyceridemia-induced pancreatitis. See **Warnings and Precautions (5.1)**
- A history of bowel obstruction. See **Warnings and Precautions (5.2)**

5 WARNINGS AND PRECAUTIONS

5.1 Hypertriglyceridemia and Pancreatitis

Colesevelam hydrochloride, like other bile acid sequestrants, can increase serum TG concentrations. Hypertriglyceridemia can cause acute pancreatitis. Colesevelam hydrochloride had effects on serum TG (median increase 5% compared to placebo) in trials of patients with primary hyperlipidemia.

In trials in patients with type 2 diabetes, greater increases in TG levels occurred when colesevelam hydrochloride was used as monotherapy (median increase 9.7% compared to placebo) and when colesevelam hydrochloride was used in combination with pioglitazone (median increase 11% compared to placebo in combination with pioglitazone), sulfonyleureas (median increase 18% compared to placebo in combination with sulfonyleureas), and insulin (median increase 22% compared to placebo in combination with insulin). See **Adverse Reactions (6.1)**.

Obtain lipid parameters, including TG levels, before starting colesevelam hydrochloride and periodically thereafter. Colesevelam hydrochloride is contraindicated in patients with TG levels >500 mg/dL or patients with a history of hypertriglyceridemia-induced pancreatitis. See **Contraindications (4)**. Patients with TG levels greater than 300 mg/dL could have greater increases in serum TG levels with colesevelam hydrochloride and may require additional TG monitoring. Instruct patients to discontinue colesevelam hydrochloride and seek prompt medical attention if the symptoms of acute pancreatitis occur (e.g., severe abdominal pain with or without nausea and vomiting). Discontinue colesevelam hydrochloride if TG levels exceed 500 mg/dL. See **Adverse Reactions (6.1)**.

5.2 Gastrointestinal Obstruction

Postmarketing cases of bowel obstruction have occurred with colesevelam hydrochloride. See **Adverse Reactions (6.2)**. Because of its constipating effects, colesevelam hydrochloride is not recommended in patients with gastroparesis, other gastrointestinal motility disorders, and in those who have had major gastrointestinal tract surgery and who may be at risk for bowel obstruction. Colesevelam hydrochloride is contraindicated in patients with a history of bowel obstruction. See **Contraindications (4)**. Instruct patients to promptly discontinue colesevelam hydrochloride and seek medical attention if severe abdominal pain or severe constipation occurs.

Because of the tablet size, colesevelam hydrochloride tablets can cause dysphagia or esophageal obstruction. For patients with difficulty swallowing tablets, use colesevelam hydrochloride for oral suspension.

5.3 Vitamin K or Fat-Soluble Vitamin Deficiencies

Colesevelam hydrochloride may decrease the absorption of fat-soluble vitamins A, D, E, and K. Patients with a susceptibility to deficiencies of vitamin K (e.g., patients on warfarin, patients with malabsorption syndromes) or other fat-soluble vitamins may be at increased risk when taking colesevelam hydrochloride.

Patients on oral vitamin supplementation should take their vitamins at least 4 hours prior to colesevelam hydrochloride. See **Drug Interactions (7.1)**.

5.4 Drug Interactions

Colesevelam hydrochloride reduces gastrointestinal absorption of some drugs. Administer drugs with a known interaction at least 4 hours prior to colesevelam hydrochloride. See **Drug Interactions (7)**.

Due to the potential for decreased absorption of other drugs that have not been tested for interaction, especially those with a narrow therapeutic index, consider administering at least 4 hours prior to colesevelam hydrochloride. See **Clinical Pharmacology (12.3)**.

6 ADVERSE REACTIONS

The following important adverse reactions are described below and elsewhere in the labeling:

- Hypertriglyceridemia and Pancreatitis. See **Warnings and Precautions (5.1)**
- Gastrointestinal Obstruction. See **Warnings and Precautions (5.2)**
- Vitamin K or Fat-Soluble Vitamin Deficiencies. See **Warnings and Precautions (5.3)**

6.1 Clinical Studies Experience

Because clinical studies are conducted under widely varying conditions, adverse reaction rates observed in the clinical studies of a drug cannot be directly compared to rates in clinical studies of another drug and may not reflect the rates observed in practice.

Primary Hyperlipidemia

In 7 double-blind, placebo-controlled clinical trials, 807 patients with primary hyperlipidemia (age range 18 to 86 years, 50% women, 90% Caucasians, 7% Blacks, 2% Hispanics, 1% Asians) and elevated LDL-C were treated with colesevelam hydrochloride 1.5 g/day to 4.5 g/day from 4 to 24 weeks (total exposure 199 patient-years).

Table 1: Clinical Studies of Colesevelam Hydrochloride for Primary Hyperlipidemia: Adverse Reactions Reported in $\geq 2\%$ of Patients and More Commonly than in Placebo

	Colesevelam Hydrochloride N = 807	Placebo N = 258
Constipation	11%	7%
Dyspepsia	8.3%	3.5%
Nausea	4.2%	3.9%
Accidental injury	3.7%	2.7%
Asthma	3.6%	1.9%
Pharyngitis	3.2%	1.9%
Flu syndrome	3.2%	3.1%
Rhinitis	3.2%	3.1%
Myalgia	2.1%	0.4%

Pediatric Patients 10 to 17 Years of Age

In an 8-week double-blind, placebo-controlled study, boys and post-menarchal girls, 10 to 17 years of age, with HeFH (n=194), were treated with colesevelam hydrochloride tablets (1.5 to 3.75 g, daily) or placebo tablets.

Table 2: Clinical Study of Colesevelam Hydrochloride for Primary Hyperlipidemia in HeFH Pediatric Patients: Adverse Reactions Reported in $\geq 2\%$ of Patients and More Commonly than in Placebo

	Colesevelam Hydrochloride N = 129	Placebo N = 65
Nasopharyngitis	6.2%	4.6%
Headache	3.9%	3.1%
Fatigue	3.9%	1.5%
Creatine Phosphokinase Increase	2.3%	0%
Rhinitis	2.3%	0%
Vomiting	2.3%	1.5%

The reported adverse reactions during the additional 18-week open-label treatment period with colesevelam hydrochloride 3.8 g per day were similar to those during the double-blind period and included headache (7.6%), nasopharyngitis (5.4%), upper respiratory tract infection (4.9%), influenza (3.8%), and nausea (3.9%).

Type 2 Diabetes Mellitus

In 5 add-on combination and 1 monotherapy double-blind, 12- to 26-week, placebo-controlled clinical trials in patients with type 2 diabetes mellitus, 1022 patients were treated with colesevelam hydrochloride. The mean exposure duration was 20 weeks (total exposure 393 patient-years). Patients were to receive 3.8 grams of colesevelam hydrochloride per day. The mean age of patients was 55.7 years, 52.8 percent of the population was male and 61.9% were Caucasian, 4.8% were Asian, and 15.9% were Black or African American. At baseline the population had a mean hemoglobin A1c (HbA1c) of 8.2%, and 26% had past medical history suggestive of microvascular complications of diabetes.

Table 3 shows adverse reactions associated with the use of colesevelam hydrochloride in patients with type 2 diabetes. These adverse reactions were not present at baseline, occurred more commonly on colesevelam hydrochloride than on placebo, and occurred in at least 2% of patients treated with colesevelam hydrochloride.

Table 3: Clinical Studies of Colesevelam Hydrochloride for Type 2 Diabetes: Adverse Reactions Reported in $\geq 2\%$ of Patients and More Commonly than in Placebo

	Colesevelam Hydrochloride N = 1022	Placebo N = 1010
Constipation	6.5%	2.2%
Hypoglycemia	3.4%	3.1%
Dyspepsia	2.8%	1%
Nausea	2.6%	1.6%
Hypertension	2.6%	1.9%
Back Pain	2.3%	1.3%

A total of 5.3% of colesevelam hydrochloride-treated patients and 3.6% of placebo-treated patients were discontinued from the diabetes trials due to adverse reactions. This difference was driven mostly by gastrointestinal adverse reactions such as abdominal pain and constipation.

One patient in the add-on to sulfonyleurea trial discontinued due to body rash and mouth blistering that occurred on the first day of dosing of colesevelam hydrochloride, which may represent a hypersensitivity reaction to colesevelam hydrochloride.

Hypertriglyceridemia

Patients with fasting serum TG levels above 500 mg/dL were excluded from the diabetes clinical trials. In the diabetes trials, 1292 (67.7%) patients had baseline fasting serum TG levels less than 200 mg/dL, 426 (22.3%) had baseline fasting serum TG levels between 200 and less than 300 mg/dL, 175 (8.2%) had baseline fasting serum TG levels between 300 and 500 mg/dL, and 16 (0.8%) had fasting serum TG levels greater than or equal to 500 mg/dL. The median baseline fasting TG concentration for the study population was 160 mg/dL; the median post-treatment fasting TG was 180 mg/dL in the colesevelam hydrochloride group and 162 mg/dL in the placebo group. Colesevelam hydrochloride therapy resulted in a median placebo-corrected increase in serum TG of 9.7% (p<0.03) in the monotherapy study and of 5% (p=0.22), 11% (p<0.001), 18% (p<0.001), and 22% (p<0.001), when added to metformin, pioglitazone, sulfonyleureas, and insulin, respectively. In comparison, colesevelam hydrochloride resulted in a median increase in serum TG of 5% compared to placebo (p<0.42) in a 24-week monotherapy lipid-lowering trial.

Fasting TG concentrations >500 mg/dL occurred in 0.9% of colesevelam hydrochloride-treated patients compared to 0.7% of placebo-treated patients in the diabetes trials. Among these patients, the TG concentrations with colesevelam hydrochloride (median 606 mg/dL; interquartile range 570 to 794 mg/dL) were similar to that observed with placebo (median 663 mg/dL; interquartile range 542 to 984 mg/dL). Five (0.6%) patients on colesevelam hydrochloride and 3 (0.3%) patients on placebo developed TG elevations ≥ 1000 mg/dL.

Cardiovascular Adverse Reactions

During the diabetes trials, the incidence of patients with serious adverse reactions involving the cardiovascular system was 2.2% (22/1022) in the colesevelam hydrochloride group and 1% (10/1010) in the placebo group. These overall rates included disparate events (e.g., myocardial infarction, aortic stenosis, and bradycardia); therefore, the significance of this imbalance is unknown.

The following additional adverse reactions have been identified during post-approval use of colesevelam hydrochloride. Because these reactions are reported voluntarily from a population of uncertain size, it is generally not possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

Adverse Reactions Resulting from Drug Interactions (See Drug Interactions (7)): Increased seizure activity or decreased phenytoin levels in patients receiving phenytoin; reduced International Normalized Ratio (INR) in patients receiving warfarin; and elevated thyroid-stimulating hormone (TSH) in patients receiving thyroid hormone replacement therapy.

Gastrointestinal: Bowel obstruction (in patients with a history of bowel obstruction or resection), dysphagia or esophageal obstruction (occasionally requiring medical intervention), fecal impaction, pancreatitis, abdominal distention, exacerbation of hemorrhoids, and increased transaminases.

Laboratory Abnormalities: Hypertriglyceridemia.

7 DRUG INTERACTIONS

7.1 Colesevelam Hydrochloride Drug Interactions that Decrease the Exposure of the Concomitant Medication

Table 4 includes a list of drugs that decrease exposure of the concomitant medication when administered concomitantly with colesevelam hydrochloride and instructions for preventing or managing them.

7.2 Colesevelam Hydrochloride Drug Interactions that Increase the Exposure of the Concomitant Medication

Table 5: Colesevelam Hydrochloride Drug Interactions that Increase the Exposure of the Concomitant Medication

Drugs with a Narrow Therapeutic Index	
Cyclosporine	Concomitant use with colesevelam hydrochloride may decrease the exposure of the narrow therapeutic index drug. In vivo drug interactions studies showed a decrease in exposure of cyclosporine when coadministered with colesevelam hydrochloride. See Clinical Pharmacology (12.3) .
Warfarin	Administer the narrow therapeutic index drug at least 4 hours prior to colesevelam hydrochloride. Monitor drug levels when appropriate.
Cyclosporine	Cyclosporine

Phenytoin

Clinical Impact: There have been postmarketing reports of increased seizure activity or decreased phenytoin levels in patients receiving phenytoin. See **Adverse Reactions (6.2)**.

Intervention: Administer phenytoin 4 hours prior to colesevelam hydrochloride.

Thyroid Hormone Replacement Therapy

Clinical Impact: In vivo drug interactions studies showed a decrease in exposure of levothyroxine when coadministered with colesevelam hydrochloride. See **Clinical Pharmacology (12.3)**. There have been postmarketing reports of elevated thyroid-stimulating hormone (TSH) in patients receiving thyroid hormone replacement therapy. See **Adverse Reactions (6.2)**.

Intervention: Administer thyroid hormone replacement therapy 4 hours prior to colesevelam hydrochloride.

Warfarin

Clinical Impact: There have been postmarketing reports of reduced INR in patients receiving warfarin therapy. See **Adverse Reactions (6.2)**.

Intervention: Monitor INR frequently during colesevelam hydrochloride initiation then periodically thereafter.

Oral Contraceptives Containing Ethinyl Estradiol and Norethindrone

Clinical Impact: In vivo drug interactions studies showed a decrease in exposure of ethinyl estradiol and norethindrone when coadministered with colesevelam hydrochloride. See **Clinical Pharmacology (12.3)**.

Intervention: Administer oral contraceptives containing ethinyl estradiol and norethindrone 4 hours prior to colesevelam hydrochloride.

Olmesartan Medoxomil

Clinical Impact: In vivo drug interactions studies showed a decrease in olmesartan medoxomil when coadministered with colesevelam hydrochloride. See **Clinical Pharmacology (12.3)**.

Intervention: Administer olmesartan medoxomil 4 hours prior to colesevelam hydrochloride.

Sulfonyleureas

Clinical Impact: In vivo drug interactions studies showed a decrease in sulfonyleureas when coadministered with colesevelam hydrochloride. See **Clinical Pharmacology (12.3)**.

Intervention: Administer sulfonyleureas 4 hours prior to colesevelam hydrochloride.

Examples: Glimepiride, glipizide, and glyburide

Oral Vitamin Supplements

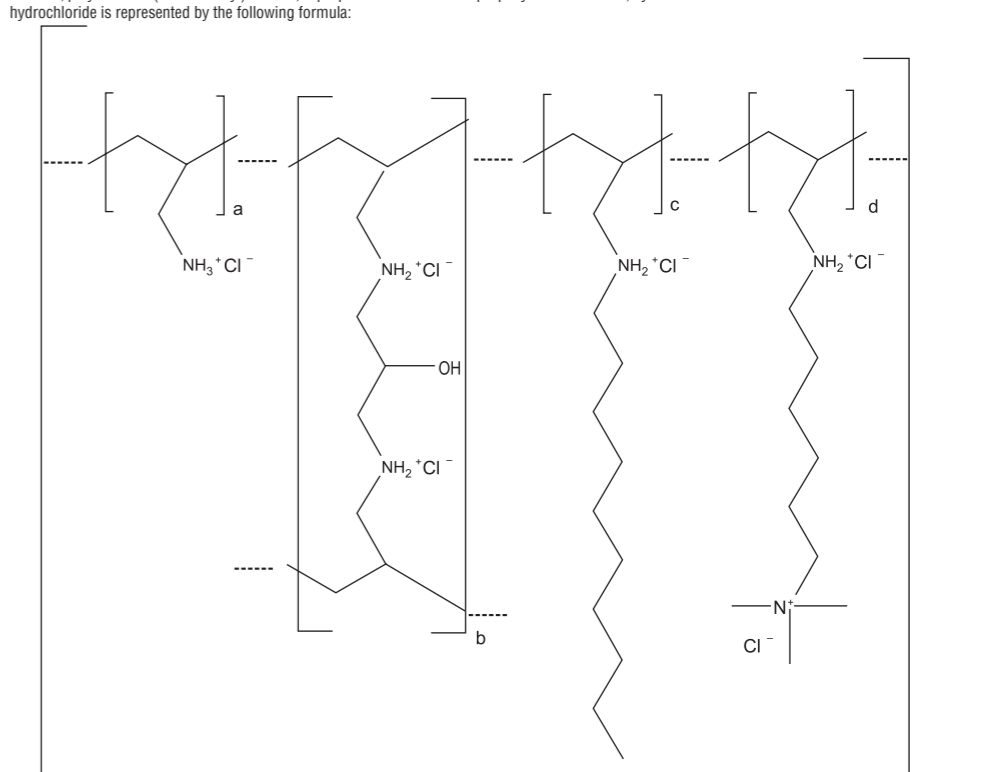
Clinical Impact: Colesevelam hydrochloride may decrease the absorption of fat-soluble vitamins A, D, E, and K. See **Warnings and Precautions (5.3)**.

Intervention: Patients on oral vitamin supplementation should take their vitamins at least 4 hours prior to colesevelam hydrochloride.

7.2 Colesevelam Hydrochloride Drug Interactions that Increase the Exposure of the Concomitant Medication

Table 5: Colesevelam Hydrochloride Drug Interactions that Increase the Exposure of the Concomitant Medication

Metformin Extended-Release (ER)	
Clinical Impact: In vivo drug interactions studies showed an increase in metformin extended release (ER) when coadministered with colesevelam hydrochloride. See Clinical Pharmacology (12.3) .	
Intervention: Monitor patients' glycemic control.	



wherein (a) represents allyl amine monomer units that have not been alkylated by either of the 1-bromodecane or (6-bromoethyl)-trimethylammonium bromide alkylating agents or cross-linked by epichlorohydrin; (b) represents allyl amine units that have undergone cross-linking with epichlorohydrin; (c) represents allyl amine units that have been alkylated with a decyl group; (d) represents allyl amine units that have been alkyl

(6-trimethylammonium) heptyl group, and m represents a number ≥100 to indicate an extended polymer network. A small amount of the amines are dialkylated and are not depicted in the formula above. No regular order of the groups is implied by the structure; cross-linking and alkylation are expected to occur randomly along the polymer chains. A large amount of the amines are protonated. The polymer is depicted in the hydrochloride form; a small amount of the halides are bromide. Colesevelam hydrochloride is hydrophilic and insoluble in water.

Colesevelam hydrochloride tablets are off-white to pale yellow capsule shaped, biconvex, film-coated tablets each containing 625 mg colesevelam hydrochloride. In addition, each tablet contains the following inactive ingredients: colloidal silicon dioxide, disacetylated monoglycerides, hypromellose, magnesium stearate, microcrystalline cellulose, and pregelatinized starch. The tablets are imprinted using a water-soluble black ink which contains ammonium hydroxide, ferric oxide black, propylene glycol and shellac.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Primary Hyperlipidemia: Colesevelam hydrochloride, the active pharmaceutical ingredient in colesevelam hydrochloride tablets, is a non-absorbed, lipid-lowering polymer that binds bile acids in the intestine, impeding their reabsorption. As the bile acid pool becomes depleted, the hepatic enzyme, cholesterol 7 α -hydroxylase, is upregulated, which increases the conversion of cholesterol to bile acids. This causes an increased demand for cholesterol in the liver cells, resulting in the dual effect of increasing transcription and activity of the cholesterol biosynthetic enzyme, HMG-CoA reductase, and increasing the number of hepatic LDL receptors. These compensatory effects result in increased clearance of LDL-C from the blood, resulting in decreased serum LDL-C levels. Serum TG levels may increase or remain unchanged.

Type 2 Diabetes Mellitus: The mechanism by which colesevelam hydrochloride improves glycemic control is unknown.

12.2 Pharmacodynamics

A maximum therapeutic response to the lipid-lowering effects of colesevelam hydrochloride was achieved within 2 weeks and was maintained during long-term therapy. In the diabetes clinical studies, a therapeutic response to colesevelam hydrochloride, as reflected by a reduction in HbA1c, was initially noted following 4 to 6 weeks of treatment and reached maximal or near-maximal effect after 12 to 18 weeks of treatment.

12.3 Pharmacokinetics

Colesevelam hydrochloride is a hydrophilic, water-insoluble polymer that is not hydrolyzed by digestive enzymes and is not absorbed.

Colesevelam hydrochloride is not absorbed, and therefore, its distribution is limited to the gastrointestinal tract.

Elimination

Metabolism

Colesevelam hydrochloride is not metabolized systemically and does not interfere with systemic drug-metabolizing enzymes such as cytochrome P450.

Excretion

In 16 healthy volunteers, an average of 0.05% of administered radioactivity from a single 14 C-labeled colesevelam hydrochloride dose was excreted in the urine.

Drug Interaction Studies

Drug interactions between colesevelam and concomitantly administered drugs were screened through *in vitro* studies and confirmed *in vivo* studies. *In vitro* studies demonstrated that cephalixin, metformin, and propofol had negligible binding to colesevelam hydrochloride. Therefore, an *in vivo* pharmacokinetic interaction of colesevelam hydrochloride with these drugs is unlikely. Colesevelam hydrochloride was found to have no significant effect on the bioavailability of aspirin, atenolol, digoxin, enalapril, fenofibrate, losartan, metoprolol, phenytoin, pioglitazone, quinine, rosiglitazone, sitagliptin, valproic acid, and warfarin. The results of additional *in vivo* drug interactions of colesevelam hydrochloride are presented in Table 6.

Table 6: Mean Change in Drug Exposure (AUC₀₋₂₄ and C_{max}) when Administered with Colesevelam Hydrochloride (3.75 g)

Drug	Dose	Co-administered		1 hr prior to Colesevelam Hydrochloride		4 hrs prior to Colesevelam Hydrochloride	
		AUC ₀₋₂₄	C _{max}	AUC ₀₋₂₄	C _{max}	AUC ₀₋₂₄	C _{max}
Cyclosporine	200 mg	-34%	-44%	N/A	N/A	N/A	N/A
Ethinyl Estradiol ^a	0.035 mg	-24%	-24%	-18%	-1%	-12%	0%
Glimepiride	4 mg	-18%	-8%	N/A	N/A	-6%	3%
Glipizide	20 mg	-12%	-13%	N/A	N/A	-4%	0%
Levthyroxine	3 mg	-22%	-17%	-20%	-15%	-7%	4%
Glyburide	600 mcg	-32%	-33%	6%	-2%	1%	8%
Metformin ER	1500 mg	44%	8%	N/A	N/A	N/A	N/A
Norethindrone ^a	1 mg	-1%	-20%	5%	-3%	6%	7%
Omeprazole Medcoximil	40 mg	-39%	-28%	N/A	N/A	-15%	-4%
Rapaglinide	2 mg	-7%	-19%	-6%	-1%	N/A	N/A
Verapamil sustained-release	240 mg	-31%	-11%	N/A	N/A	N/A	N/A

^a With verapamil, the dose of colesevelam hydrochloride was 4.5 g

^b Oral contraceptive containing norethindrone and ethinyl estradiol

N/A = Not Available

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

Carcinogenesis

A 104-week carcinogenicity study with colesevelam hydrochloride was conducted in CD-1 mice, at oral dietary doses up to 3 g/kg/day. This dose was approximately 50 times the maximum recommended human dose of 4.5 g/day, based on body weight, mg/kg. There was no significant drug-induced tumor findings in male or female mice. In a 104-week carcinogenicity study with colesevelam hydrochloride in Hartley Sprague-Dawley rats, a statistically significant increase in the incidence of pancreatic acinar cell adenoma was seen in male rats at doses >1.2 g/kg/day (approximately 20 times the maximum human dose, based on body weight, mg/kg) (trend test only). A statistically significant increase in thyroid C-cell adenoma was seen in female rats at 2.4 g/kg/day (approximately 40 times the maximum human dose, based on body weight, mg/kg).

Mutagenesis

Colesevelam hydrochloride and 4 degradants present in the drug substance had been evaluated for mutagenicity in the Ames test and a mammalian chromosomal aberration test. The 4 degradants and an extract of the parent compound did not exhibit genetic toxicity in an *in vitro* bacterial mutagenesis assay in *S. typhimurium* and *E. coli* (Ames assay) with or without rat liver metabolic activation. An extract of the parent compound was positive in the Chinese Hamster Ovary (CHO) cell chromosomal aberration assay in the presence of metabolic activation and negative in the absence of metabolic activation. The results of the CHO cell chromosomal aberration assay with 2 of the 4 degradants, decaethylamine HCl and aminohexyltrimethyl ammonium chloride HCl, were equivocal in the absence of metabolic activation and negative in the presence of metabolic activation. The other 2 degradants, didecylamine HCl and 6-decylamino-hexyltrimethyl ammonium chloride HCl, were negative in the presence and absence of metabolic activation.

Impairment of Fertility

Colesevelam hydrochloride did not impair fertility in rats at doses up to 3 g/kg/day (approximately 50 times the maximum human dose, based on body weight, mg/kg).

13.2 Animal Toxicology and/or Pharmacology

Reproductive Toxicology Studies

Reproduction studies have been performed in rats and rabbits at doses up to 3 g/kg/day and 1 g/kg/day, respectively (approximately 50 and 17 times the maximum human dose, based on body weight, mg/kg) and have revealed no evidence of harm to the fetus due to colesevelam hydrochloride.

14 CLINICAL STUDIES

14.1 Primary Hyperlipidemia

Colesevelam hydrochloride reduces total cholesterol (TC), LDL-C, apolipoprotein B (Apo B), and non-high-density lipoprotein cholesterol (non-HDL-C) when administered alone or in combination with a statin in patients with primary hyperlipidemia.

Approximately 1800 patients were studied in 9 clinical trials with treatment durations ranging from 4 to 50 weeks. With the exception of one open-label, uncontrolled, long-term maintenance study, all studies were multicenter, randomized, double-blind, and placebo-controlled. A maximum therapeutic response to colesevelam hydrochloride was achieved within 2 weeks and was maintained during long-term therapy.

Monotherapy

In a study in patients with LDL-C between 130 mg/dL and 220 mg/dL (mean 158 mg/dL), colesevelam hydrochloride was given for 24 weeks in divided doses with the morning and evening meals.

As shown in Table 7, the mean LDL-C reductions were 15% and 18% at the 3.8 g and 4.5 g doses, respectively. Mean TC reductions were 7% and 10%, and the mean Apo B reductions were 12% in both treatment groups. Colesevelam hydrochloride at both doses increased in LDL-C by 3%. Increases in TG of 9 to 10% were observed at both colesevelam hydrochloride doses, but the changes were not statistically different from placebo.

Table 7: Response to Colesevelam Hydrochloride Monotherapy in a 24-Week Trial-Percent Change in Lipid Parameters from Baseline

Groups/Day	N	TC	LDL-C	Apo B	HDL-C	Non-HDL-C	TG ^b
Placebo	88	+1	0	0	-1	+1	+5
3.8 g (6 tablets)	95	-7 ^a	-15 ^a	-12 ^a	+3 ^a	-10 ^a	+10
4.5 g (7 tablets)	94	-10 ^a	-18 ^a	-12 ^a	+3	-13 ^a	+9

^a Median % change from baseline

^b p < 0.05 for lipid parameters compared to placebo, for Apo B compared to baseline

In a study in 98 patients with LDL-C between 145 mg/dL and 250 mg/dL (mean 189 mg/dL), colesevelam hydrochloride 3.8 g was given for 6 weeks as a single dose with breakfast, as a single dose with dinner, or as divided doses with breakfast and dinner. The mean LDL-C reductions were 18%, 15%, and 18% for the 3 dosing regimens, respectively. The reductions with these 3 regimens were not statistically different from one another.

Combination Therapy

Co-administration of colesevelam hydrochloride and a statin (atorvastatin, lovastatin, or simvastatin) in 3 clinical studies demonstrated an additive reduction of LDL-C. The mean baseline LDL-C was 184 mg/dL in the atorvastatin study (range 156 to 238 mg/dL), 171 mg/dL in the lovastatin study (range 115 to 247 mg/dL), and 188 mg/dL in the simvastatin study (range 148 to 352 mg/dL). As demonstrated in Table 8, colesevelam hydrochloride doses of 2.3 g to 3.8 g resulted in an additional 8% to 16% reduction in LDL-C above that seen with the statin alone.

Table 8: Response to Colesevelam Hydrochloride in Combination with Atorvastatin, Simvastatin, or Lovastatin Percent Change in Lipid Parameters

Dose/Day	N	TC	LDL-C	Apo B	HDL-C	Non-HDL-C	TG ^b
Atorvastatin Trial (4-week)							
Placebo	19	+4	+3	-3	+4	+4	+10
Atorvastatin 10 mg	18	-27 ^a	-38 ^a	-32 ^a	+8	-35 ^a	-24 ^a
Colesevelam Hydrochloride 3.8 g/ Atorvastatin 10 mg	18	-31 ^a	-48 ^a	-38 ^a	+11	-40 ^a	-1 ^a
Atorvastatin 80 mg	20	-39 ^a	-53 ^a	-46 ^a	+6	-50 ^a	-33 ^a
Simvastatin Trial (6-week)							
Placebo	33	-2	-4	-4	-3	-2	+6 ^b
Simvastatin 10 mg	35	-19 ^a	-26 ^a	-20 ^a	+3 ^a	-24 ^a	-17 ^a
Colesevelam Hydrochloride 3.8 g/ Simvastatin 10 mg	34	-28 ^a	-42 ^a	-33 ^a	+10 ^a	-37 ^a	-12 ^a
Simvastatin 20 mg	39	-23 ^a	-34 ^a	-26 ^a	+7 ^a	-30 ^a	-12 ^a
Colesevelam Hydrochloride 2.3 g/ Simvastatin 20 mg	37	-29 ^a	-42 ^a	-32 ^a	+4 ^a	-37 ^a	-12 ^a
Lovastatin Trial (4-week)							
Placebo	26	+1	0	0	+1	+1	+1
Lovastatin 10 mg	26	-14 ^a	-22 ^a	-16 ^a	+5	-19 ^a	-1
Colesevelam Hydrochloride 2.3 g/ Lovastatin 10 mg	27	-21 ^a	-34 ^a	-24 ^a	+4	-27 ^a	-1
Together							
Colesevelam Hydrochloride 2.3 g/ Lovastatin 10 mg	23	-21 ^a	-32 ^a	-24 ^a	+2	-28 ^a	-2
Apart							

^a Median % change from baseline

^b p < 0.05 for lipid parameters compared to placebo, for Apo B compared to baseline

In all 3 studies, the LDL-C reduction achieved with the combination of colesevelam hydrochloride and any given dose of statin therapy was statistically superior to that achieved with colesevelam hydrochloride or that dose of the statin alone. The LDL-C reduction with atorvastatin 80 mg was not statistically significantly different from the combination of colesevelam hydrochloride 3.8 g and atorvastatin 10 mg.

Pediatric Therapy

The safety and efficacy of colesevelam hydrochloride in pediatric patients were evaluated in an 8-week, multicenter, randomized, double-blind, placebo-controlled, parallel-group study followed by an open-label phase, in 194 boys and postmenarcheal girls 10 to 17 years of age (mean age 14.1 years) with HeFH, taking a stable dose of an FDA-approved statin (with LDL-C >150 mg/dL) or naive to lipid-lowering therapy (with LDL-C >160 mg/dL). This study had 3 periods: a single-blind, placebo stabilization period; an 8-week, randomized, double-blind, parallel-group, placebo-controlled treatment period; and an 18-week, open-label treatment period. Forty-seven (24%) patients were taking statins and 147 (76%) patients were statin-naïve at screening. The mean baseline LDL-C at Day 1 was approximately 199 mg/dL.

During the double-blind treatment period, patients were assigned randomly to treatment: colesevelam hydrochloride 3.8 g/day (n=64), colesevelam hydrochloride 1.9 g/day (n=65), or placebo (n=65). In total, 186 patients completed the double-blind treatment period. After 8 weeks of treatment, colesevelam hydrochloride 3.8 g/day significantly decreased plasma levels of LDL-C, non-HDL-C, TC, and Apo B and significantly increased HDL-C. A moderate, non-statistically significant increase in TG was observed versus placebo (Table 9).

Table 9: Response to Colesevelam Hydrochloride 3.8 g Compared to Placebo in Pediatric Patients 10 to 17 Years of Age – Mean Percent Change in Lipid Parameters from Baseline to Week 8

Treatment Difference	TC (N=128)	LDL-C (N=128)	Apo B (N=124)	HDL-C (N=128)	Non-HDL-C (N=128)	TG (N=128)
Colesevelam Hydrochloride 3.8 g vs Placebo	-7 ^a	-13 ^a	-8 ^a	+6 ^a	-11 ^a	+5

^a For triglycerides, median % change from baseline

^b p < 0.05 for lipid parameters compared to placebo

Values represent LS mean. Only patients with values at both study baseline and endpoint are included in this table. Study baseline was defined as the last value measured before or on Day 1 prior to the first dose of randomized study medication. Results were based on the ITT population with LOCF.

During the open-label treatment period patients were treated with colesevelam hydrochloride 3.8 g/day. In total, 173 (89%) patients completed 26 weeks of treatment. Results at Week 26 were consistent with those at Week 8.

14.2 Type 2 Diabetes Mellitus

Colesevelam hydrochloride has been studied as monotherapy and in combination with metformin, pioglitazone, sulfonylureas, and insulin. In these studies, colesevelam hydrochloride and placebo were administered either as 3 tablets twice daily with lunch and dinner or as 6 tablets with dinner alone.

Monotherapy

The efficacy of colesevelam hydrochloride 3.8 g/day as anti-diabetic monotherapy was evaluated in a randomized double-blind, placebo-controlled trial involving 557 patients (176 colesevelam hydrochloride and 181 placebo) with type 2 diabetes mellitus who were treatment-naïve or had not received antihyperglycemic medication within 3 months prior to the start of the study. Statin use at baseline was reported in 13% of the colesevelam hydrochloride-treated patients and 16% of the placebo-treated patients.

Colesevelam hydrochloride resulted in a statistically significant reduction in HbA1c of 0.27% compared to placebo (Table 10).

The mean baseline LDL-C was 121 mg/dL in the monotherapy trial. Colesevelam hydrochloride treatment resulted in a placebo-corrected 11% reduction in LDL-C. Colesevelam hydrochloride also reduced serum TC, ApoB, and non-HDL-C (Table 11). The mean change in body weight was -0.6 kg for colesevelam hydrochloride and -0.7 kg for placebo treatment groups.

Table 10: Glycemic Parameters in a 24-Week Placebo-Controlled Study of Colesevelam Hydrochloride Monotherapy in Patients with Type 2 Diabetes

	Colesevelam Hydrochloride 3.8 g/day	Placebo
HbA1c (%), Mean		
N	175	169
Baseline	8.25	8.17
Change from baseline ^a	-0.26	0.01
Treatment difference (p-value)	-0.27 (p=0.013)	
FFG (mg/dL), Mean		
N	172	166
Baseline	172	168
Change from baseline ^a	-4.6	5.7
Treatment difference (p-value)	-10.3 (p=0.037)	

^a Least-squares mean change calculated from an Analysis of Covariance model

^b Nominal p-value, not controlled for multiplicity testing

FFG = fasting plasma glucose

Table 11: Percent Change in Lipid Parameters in a 24-Week Placebo-Controlled Study of Colesevelam Hydrochloride Monotherapy in Patients with Type 2 Diabetes

Dose/Day	N	TC	LDL-C	Apo B	HDL-C	Non-HDL-C	TG ^b
Colesevelam Hydrochloride 3.8 g	162	-33 ^a	-10 ^a	-5.6 ^a	1.7	-4.4	15.5
Placebo	160	1.8	1.2	0.9	-0.1	3	5.8

^a The number of patients with analyzable data, i.e., a baseline and post-treatment value (last observation carried forward), varied slightly among different parameters. The N given represents the smallest number of patients included in the analysis for any parameter.

^b Median % change from baseline

^c p < 0.001 for lipid parameters compared to placebo (This more stringent criterion for statistical significance accounts for multiplicity testing of the lipid parameters, which were secondary endpoints in the diabetes trials.)

Add-on Combination Therapy

The efficacy of colesevelam hydrochloride 3.8 g/day in patients with type 2 diabetes mellitus was evaluated in 5 double-blind, placebo-controlled add-on therapy trials involving a total of 1691 patients with baseline HbA1c 7.5 to 9.5%. Patients were enrolled and maintained on their pre-existing, stable, background anti-diabetic regimen. Statin use at baseline was reported in 41% of the colesevelam hydrochloride-treated patients and 48% of the placebo-treated patients.

In 3 add-on combination therapy trials (metformin, sulfonylurea and insulin), treatment with colesevelam hydrochloride resulted in a statistically significant reduction in HbA1c of 0.5% compared to placebo. Similar placebo-corrected reductions in HbA1c were observed in patients who received colesevelam hydrochloride in combination with metformin, sulfonylurea, or insulin monotherapy or combinations of these therapies with other anti-diabetic agents. In the pioglitazone trial, treatment with colesevelam hydrochloride resulted in a statistically significant reduction in HbA1c of 0.32% compared to placebo. In the metformin, pioglitazone, and sulfonylurea trials, treatment with colesevelam hydrochloride also resulted in statistically significant reductions in FPG of at least 14 mg/dL compared to placebo.

Colesevelam hydrochloride had consistent effects on HbA1c across subgroups of age, gender, race, body mass index, and baseline HbA1c. Colesevelam hydrochloride's effects on HbA1c were also similar for the two dosing regimens (3 tablets with lunch and dinner or 6 tablets with dinner alone).

The mean baseline LDL-C was 104 mg/dL in the metformin study (range 32 to 214 mg/dL), 107 mg/dL in the pioglitazone study (range 48 to 263 mg/dL), 106 mg/dL in the sulfonylurea study (range 41 to 264 mg/dL), 102 mg/dL in the insulin study (range 35 to 204 mg/dL). In these trials, colesevelam hydrochloride treatment was associated with a 12% to 16% reduction in LDL-C levels. The percentage decreases in LDL-C were of similar magnitude to those observed in patients with primary hyperlipidemia. Colesevelam hydrochloride treatment was associated with statistically significant increases in TG levels in the studies of patients on insulin, sulfonylurea, and patients on pioglitazone but not in the study of patients on metformin. The clinical significance of these increases is unknown. Colesevelam hydrochloride is contraindicated in patients with TG levels >500 mg/dL. *[See Contraindications (4)],* and periodic monitoring of lipid parameters including TG is recommended. *[See Warnings and Precautions (5.1) and Adverse Reactions (6.1)].*

Body weight did not significantly increase from baseline with Colesevelam hydrochloride therapy, compared with placebo, in any of the add-on combination diabetes studies.

Add-on Combination Therapy with Metformin

Colesevelam hydrochloride 3.8 g/day or placebo was added to background anti-diabetic therapy in a 26-week trial of 316 patients already receiving treatment with metformin alone (N=159) or metformin in combination with other oral agents (N=157). A total of 60% of these patients were receiving ≥1,500 mg/day of metformin. In combination with metformin, colesevelam hydrochloride resulted in statistically significant placebo-corrected reductions in HbA1c and FPG (Table 12). Colesevelam hydrochloride also reduced TC, LDL-C, Apo B, and non-HDL-C (Table 13). The mean percent change in serum TG levels with colesevelam hydrochloride compared to placebo was -16% among statin users and statin non-users; the median percent change in serum TG levels with colesevelam hydrochloride compared to placebo was -2% among statin users and 10% among statin non-users. The mean change in body weight was -0.5 kg for colesevelam hydrochloride and -0.3 kg for placebo.

Table 12: Glycemic Parameters in a 26-Week Placebo-Controlled Study of Colesevelam Hydrochloride in Combination with Metformin in Patients with Type 2 Diabetes

	Total Patient Population		Metformin Alone		Metformin in Combination with Other Oral Anti-diabetic Agents	
	Colesevelam Hydrochloride 3.8 g/day	Placebo	Colesevelam Hydrochloride 3.8 g/day	Placebo	Colesevelam Hydrochloride 3.8 g/day	Placebo
HbA1c (%), Mean						
N	148	152	79	76	69	76
Baseline	8.1	8.1	8.2	8.2	8.1	8
Change from baseline ^a	-0.4	0.2	-0.4	0	-0.4	0.3
Treatment difference (p-value)	-0.5 (p<0.001)		-0.5 (p=0.002)		-0.6 (p<0.001)	
FFG (mg/dL), Mean						
N	149	152	79	76	70	76
Baseline	178	174	184	180	171	168
Change from baseline ^a	-3	11	-7	8	0	13
Treatment difference (p-value)	-14 (p<0.01)		-14 (p<0.07)		-14 (p<0.10)	

^a Least-squares mean change calculated from an Analysis of Covariance model

Table 13: Percent Change in Lipid Parameters in a 26-Week Placebo-Controlled Study of Colesevelam Hydrochloride in Combination with Metformin in Patients with Type 2 Diabetes

Dose/Day	N	TC	LDL-C	Apo B	HDL-C	Non-HDL-C	TG ^b
Total Patient Population							
Colesevelam Hydrochloride 3.8 g	125	-4 ^a	-12 ^a	-4 ^a	1	-6 ^a	12
Placebo	126	3	4	4	0	5	7
Metformin Alone							
Colesevelam Hydrochloride 3.8 g	66	-3	-9	-2	1	-4	15
Placebo	61	2	0	1	-2	4	8
Metformin in Combination with Other Oral Anti-diabetic Agents							
Colesevelam Hydrochloride 3.8 g	59	-6 ^a	-15 ^a	-6 ^a	1	-7 ^a	8
Placebo	65	4	7	7	2	6	5

^a The number of patients with analyzable data, i.e., a baseline and post-treatment value (last observation carried forward), varied slightly among different parameters. The N given represents the smallest number of patients included in the analysis for any parameter.

^b Median % change from baseline

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