

## HIGHLIGHTS OF PRESCRIBING INFORMATION

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

GLYXAMBI® (empagliflozin and linagliptin) tablets, for oral use  
Initial U.S. Approval: 2015

### -----RECENT MAJOR CHANGES-----

#### Warnings and Precautions

Severe and Disabling Arthralgia (5.9)

8/2015

### -----INDICATIONS AND USAGE-----

GLYXAMBI is a sodium-glucose co-transporter 2 (SGLT2) inhibitor and dipeptidyl peptidase-4 (DPP-4) inhibitor combination product indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus when treatment with both empagliflozin and linagliptin is appropriate. (1)

#### Limitations of use:

- Not for the treatment of type 1 diabetes mellitus or diabetic ketoacidosis (1.1)
- Has not been studied in patients with a history of pancreatitis (1.1)

### -----DOSAGE AND ADMINISTRATION-----

- The recommended dose of GLYXAMBI is 10 mg empagliflozin/5 mg linagliptin once daily, taken in the morning, with or without food (2.1)
- Dose may be increased to 25 mg empagliflozin/5 mg linagliptin once daily (2.1)
- Assess renal function before initiating GLYXAMBI. Do not initiate GLYXAMBI if eGFR is below 45 mL/min/1.73 m<sup>2</sup> (2.2)
- Discontinue GLYXAMBI if eGFR falls persistently below 45 mL/min/1.73 m<sup>2</sup> (2.2)

### -----DOSAGE FORMS AND STRENGTHS-----

#### Tablets:

10 mg empagliflozin/5 mg linagliptin

25 mg empagliflozin/5 mg linagliptin (3)

### -----CONTRAINDICATIONS-----

- Severe renal impairment, end-stage renal disease, or dialysis (4)
- History of hypersensitivity reaction to linagliptin, such as anaphylaxis, angioedema, exfoliative skin conditions, urticaria, or bronchial hyperreactivity (4)
- History of serious hypersensitivity reaction to empagliflozin (4)

### -----WARNINGS AND PRECAUTIONS-----

- *Pancreatitis:* There have been postmarketing reports of acute pancreatitis, including fatal pancreatitis. If pancreatitis is suspected, promptly discontinue GLYXAMBI. (5.1)

- *Hypotension:* Before initiating GLYXAMBI assess and correct volume status in patients with renal impairment, the elderly, in patients with low systolic blood pressure, and in patients on diuretics. Monitor for signs and symptoms during therapy. (5.2)
- *Impairment in Renal Function:* Monitor renal function during therapy. More frequent monitoring is recommended in patients with eGFR below 60 mL/min/1.73 m<sup>2</sup>. (5.3)
- *Hypoglycemia:* Consider lowering the dose of insulin secretagogue or insulin to reduce the risk of hypoglycemia when initiating GLYXAMBI. (5.4)
- *Genital Mycotic Infections:* Monitor and treat as appropriate (5.5)
- *Urinary Tract Infections:* Monitor and treat as appropriate (5.6)
- *Hypersensitivity:* There have been postmarketing reports of serious hypersensitivity reactions in patients treated with linagliptin (one of the components of GLYXAMBI) including anaphylaxis, angioedema, and exfoliative skin conditions. In such cases, promptly discontinue GLYXAMBI, assess for other potential causes, institute appropriate monitoring and treatment, and initiate alternative treatment for diabetes. (5.7)
- *Increased LDL-C:* Monitor and treat as appropriate (5.8)
- *Arthralgia:* Severe and disabling arthralgia has been reported in patients taking DPP-4 inhibitors. Consider as a possible cause for severe joint pain and discontinue drug if appropriate. (5.9)
- *Macrovascular Outcomes:* There have been no clinical studies establishing conclusive evidence of macrovascular risk reduction with GLYXAMBI or any other antidiabetic drug. (5.10)

### -----ADVERSE REACTIONS-----

- The most common adverse reactions associated with GLYXAMBI (a 5% or greater incidence) were urinary tract infections, nasopharyngitis, and upper respiratory tract infections. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact Boehringer Ingelheim Pharmaceuticals, Inc. at 1-800-542-6257 or 1-800-459-9906 TTY, or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).

### -----USE IN SPECIFIC POPULATIONS-----

- *Pregnancy:* There are no adequate and well-controlled studies in pregnant women. Use during pregnancy only if the potential benefit justifies the potential risk to the fetus. (8.1)
- *Nursing Mothers:* Discontinue GLYXAMBI or discontinue nursing (8.3)
- *Pediatric Patients:* Safety and effectiveness of GLYXAMBI in pediatric patients have not been established. (8.4)
- *Geriatric Patients:* Higher incidence of adverse reactions related to volume depletion and reduced renal function (5.2, 5.3, 8.5)
- *Renal Impairment:* Higher incidence of adverse reactions related to reduced renal function (2.2, 5.3, 8.6)

See 17 for PATIENT COUNSELING INFORMATION and Medication Guide.

Revised: 8/2015

## FULL PRESCRIBING INFORMATION: CONTENTS\*

### 1 INDICATIONS AND USAGE

- 1.1 Limitations of Use

### 2 DOSAGE AND ADMINISTRATION

- 2.1 Recommended Dosage
- 2.2 Patients with Renal Impairment

### 3 DOSAGE FORMS AND STRENGTHS

### 4 CONTRAINDICATIONS

### 5 WARNINGS AND PRECAUTIONS

- 5.1 Pancreatitis
- 5.2 Hypotension
- 5.3 Impairment in Renal Function
- 5.4 Hypoglycemia with Concomitant Use with Insulin and Insulin Secretagogues
- 5.5 Genital Mycotic Infections
- 5.6 Urinary Tract Infections
- 5.7 Hypersensitivity Reactions
- 5.8 Increased Low-Density Lipoprotein Cholesterol (LDL-C)
- 5.9 Severe and Disabling Arthralgia
- 5.10 Macrovascular Outcomes

### 6 ADVERSE REACTIONS

- 6.1 Clinical Trials Experience
- 6.2 Postmarketing Experience

### 7 DRUG INTERACTIONS

- 7.1 Drug Interactions with Empagliflozin
- 7.2 Drug Interactions with Linagliptin

### 8 USE IN SPECIFIC POPULATIONS

- 8.1 Pregnancy
- 8.3 Nursing Mothers
- 8.4 Pediatric Use
- 8.5 Geriatric Use
- 8.6 Renal Impairment
- 8.7 Hepatic Impairment

### 10 OVERDOSAGE

### 11 DESCRIPTION

### 12 CLINICAL PHARMACOLOGY

- 12.1 Mechanism of Action
- 12.2 Pharmacodynamics
- 12.3 Pharmacokinetics

### 13 NONCLINICAL TOXICOLOGY

- 13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

### 14 CLINICAL STUDIES

### 16 HOW SUPPLIED/STORAGE AND HANDLING

### 17 PATIENT COUNSELING INFORMATION

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

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## FULL PRESCRIBING INFORMATION

### 1 INDICATIONS AND USAGE

GLYXAMBI tablets are indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus when treatment with both empagliflozin and linagliptin is appropriate [see *Clinical Studies (14)*].

#### 1.1 Limitations of Use

GLYXAMBI is not recommended for patients with type 1 diabetes or for the treatment of diabetic ketoacidosis.

GLYXAMBI has not been studied in patients with a history of pancreatitis. It is unknown whether patients with a history of pancreatitis are at an increased risk for the development of pancreatitis while using GLYXAMBI [see *Warnings and Precautions (5.1)*].

### 2 DOSAGE AND ADMINISTRATION

#### 2.1 Recommended Dosage

The recommended dose of GLYXAMBI is 10 mg empagliflozin/5 mg linagliptin once daily in the morning, taken with or without food. In patients tolerating GLYXAMBI, the dose may be increased to 25 mg empagliflozin/5 mg linagliptin once daily.

In patients with volume depletion, correcting this condition prior to initiation of GLYXAMBI is recommended [see *Warnings and Precautions (5.2)*, *Use in Specific Populations (8.5)*, and *Patient Counseling Information (17)*].

No studies have been performed specifically examining the safety and efficacy of GLYXAMBI in patients previously treated with other oral antihyperglycemic agents and switched to GLYXAMBI. Any change in therapy of type 2 diabetes should be undertaken with care and appropriate monitoring as changes in glycemic control can occur.

#### 2.2 Patients with Renal Impairment

Assessment of renal function is recommended prior to initiation of GLYXAMBI and periodically thereafter.

GLYXAMBI should not be initiated in patients with an eGFR less than 45 mL/min/1.73 m<sup>2</sup>.

No dose adjustment is needed in patients with an eGFR greater than or equal to 45 mL/min/1.73 m<sup>2</sup>.

GLYXAMBI should be discontinued if eGFR is persistently less than 45 mL/min/1.73 m<sup>2</sup> [see *Warnings and Precautions (5.2, 5.3)*, and *Use in Specific Populations (8.6)*].

### 3 DOSAGE FORMS AND STRENGTHS

GLYXAMBI is a combination of empagliflozin and linagliptin. GLYXAMBI is available in the following dosage forms and strengths:

- 10 mg empagliflozin/5 mg linagliptin tablets are pale yellow, arc triangular, flat-faced, bevel-edged film-coated tablets. One side is debossed with the Boehringer Ingelheim company symbol; the other side is debossed with "10/5".

- 25 mg empagliflozin/5 mg linagliptin tablets are pale pink, arc triangular, flat-faced, bevel-edged film-coated tablets. One side is debossed with the Boehringer Ingelheim company symbol; the other side is debossed with "25/5".

#### 4 CONTRAINDICATIONS

GLYXAMBI is contraindicated in patients with:

- Severe renal impairment, end-stage renal disease, or dialysis [see *Use in Specific Populations (8.6)*].
- A history of hypersensitivity reaction to linagliptin, such as anaphylaxis, angioedema, exfoliative skin conditions, urticaria, or bronchial hyperreactivity [see *Warnings and Precautions (5.7) and Adverse Reactions (6)*].
- History of serious hypersensitivity reaction to empagliflozin.

#### 5 WARNINGS AND PRECAUTIONS

##### 5.1 Pancreatitis

There have been postmarketing reports of acute pancreatitis, including fatal pancreatitis, in patients taking linagliptin. Take careful notice of potential signs and symptoms of pancreatitis. If pancreatitis is suspected, promptly discontinue GLYXAMBI and initiate appropriate management. It is unknown whether patients with a history of pancreatitis are at increased risk for the development of pancreatitis while using GLYXAMBI.

##### 5.2 Hypotension

Empagliflozin causes intravascular volume contraction. Symptomatic hypotension may occur after initiating empagliflozin [see *Adverse Reactions (6.1)*] particularly in patients with renal impairment, the elderly, in patients with low systolic blood pressure, and in patients on diuretics. Before initiating GLYXAMBI, assess for volume contraction and correct volume status if indicated. Monitor for signs and symptoms of hypotension after initiating therapy and increase monitoring in clinical situations where volume contraction is expected [see *Use in Specific Populations (8.5)*].

##### 5.3 Impairment in Renal Function

Empagliflozin increases serum creatinine and decreases eGFR. The risk of impaired renal function with empagliflozin is increased in elderly patients and patients with moderate renal impairment. More frequent monitoring of renal function is recommended in these patients [see *Use in Specific Populations (8.5, 8.6)*]. Renal function should be evaluated prior to initiating GLYXAMBI and periodically thereafter.

##### 5.4 Hypoglycemia with Concomitant Use with Insulin and Insulin Secretagogues

Insulin and insulin secretagogues are known to cause hypoglycemia. The use of empagliflozin or linagliptin in combination with an insulin secretagogue (e.g., sulfonylurea) or insulin was associated with a higher rate of hypoglycemia compared with placebo in a clinical trial. Therefore, a lower dose of the insulin secretagogue or insulin may be required to reduce the risk of hypoglycemia when used in combination with GLYXAMBI.

##### 5.5 Genital Mycotic Infections

Empagliflozin increases the risk for genital mycotic infections [see *Adverse Reactions (6.1)*]. Patients with a history of chronic or recurrent genital mycotic infections were more likely to develop mycotic genital infections. Monitor and treat as appropriate.

##### 5.6 Urinary Tract Infections

Empagliflozin increases the risk for urinary tract infections [see *Adverse Reactions (6.1)*]. Monitor and treat as appropriate.

## 5.7 Hypersensitivity Reactions

There have been postmarketing reports of serious hypersensitivity reactions in patients treated with linagliptin (one of the components of GLYXAMBI). These reactions include anaphylaxis, angioedema, and exfoliative skin conditions. Onset of these reactions occurred within the first 3 months after initiation of treatment with linagliptin, with some reports occurring after the first dose. If a serious hypersensitivity reaction is suspected, discontinue GLYXAMBI, assess for other potential causes for the event, and institute alternative treatment for diabetes.

Angioedema has also been reported with other dipeptidyl peptidase-4 (DPP-4) inhibitors. Use caution in a patient with a history of angioedema to another DPP-4 inhibitor because it is unknown whether such patients will be predisposed to angioedema with GLYXAMBI.

## 5.8 Increased Low-Density Lipoprotein Cholesterol (LDL-C)

Increases in LDL-C can occur with empagliflozin [see *Adverse Reactions* (6.1)]. Monitor and treat as appropriate.

## 5.9 Severe and Disabling Arthralgia

There have been postmarketing reports of severe and disabling arthralgia in patients taking DPP-4 inhibitors. The time to onset of symptoms following initiation of drug therapy varied from one day to years. Patients experienced relief of symptoms upon discontinuation of the medication. A subset of patients experienced a recurrence of symptoms when restarting the same drug or a different DPP-4 inhibitor. Consider as a possible cause for severe joint pain and discontinue drug if appropriate.

## 5.10 Macrovascular Outcomes

There have been no clinical studies establishing conclusive evidence of macrovascular risk reduction with GLYXAMBI or any other antidiabetic drug.

# 6 ADVERSE REACTIONS

## 6.1 Clinical Trials Experience

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 the clinical trials of another drug and may not reflect the rates observed in practice.

### *Empagliflozin and Linagliptin*

The safety of concomitantly administered empagliflozin (daily dose 10 mg or 25 mg) and linagliptin (daily dose 5 mg) has been evaluated in a total of 1363 patients with type 2 diabetes treated for up to 52 weeks in active-controlled clinical trials. The most common adverse reactions with concomitant administration of empagliflozin and linagliptin based on a pooled analyses of these studies are shown in Table 1.

**Table 1 Adverse Reactions Reported in  $\geq 5\%$  of Patients Treated with Empagliflozin and Linagliptin**

	GLYXAMBI 10 mg/5 mg n=272	GLYXAMBI 25 mg/5 mg n=273
	n (%)	n (%)
Urinary tract infection <sup>a</sup>	34 (12.5)	31 (11.4)
Nasopharyngitis	16 (5.9)	18 (6.6)
Upper respiratory tract infection	19 (7.0)	19 (7.0)

<sup>a</sup>Predefined adverse event grouping, including, but not limited to, urinary tract infection, asymptomatic bacteriuria, cystitis

### *Empagliflozin*

Adverse reactions that occurred in  $\geq 2\%$  of patients receiving empagliflozin and more commonly than in patients given placebo included (10 mg, 25 mg, and placebo): urinary tract infection (9.3%, 7.6%, and 7.6%), female genital mycotic infections (5.4%, 6.4%, and 1.5%), upper respiratory tract infection (3.1%, 4.0%, and 3.8%), increased urination (3.4%, 3.2%, and 1.0%), dyslipidemia (3.9%, 2.9%, and 3.4%), arthralgia (2.4%, 2.3%, and 2.2%), male genital mycotic infections (3.1%, 1.6%, and 0.4%), and nausea (2.3%, 1.1%, and 1.4%).

Empagliflozin causes an osmotic diuresis, which may lead to intravascular volume contraction and adverse reactions related to volume depletion.

### *Linagliptin*

Adverse reactions reported in  $\geq 2\%$  of patients treated with linagliptin 5 mg and more commonly than in patients treated with placebo included: nasopharyngitis (7.0% and 6.1%), diarrhea (3.3% and 3.0%), and cough (2.1% and 1.4%).

Other adverse reactions reported in clinical studies with treatment of linagliptin monotherapy were hypersensitivity (e.g., urticaria, angioedema, localized skin exfoliation, or bronchial hyperreactivity) and myalgia.

In the clinical trial program, pancreatitis was reported in 15.2 cases per 10,000 patient year exposure while being treated with linagliptin compared with 3.7 cases per 10,000 patient year exposure while being treated with comparator (placebo and active comparator, sulfonylurea). Three additional cases of pancreatitis were reported following the last administered dose of linagliptin.

### *Hypoglycemia*

Table 2 summarizes the reports of hypoglycemia with empagliflozin and linagliptin over a treatment period of 52 weeks.

**Table 2 Incidence of Overall<sup>a</sup> and Severe<sup>b</sup> Hypoglycemic Adverse Reactions**

Add-on to Metformin (52 weeks)	GLYXAMBI 10 mg/5 mg (n=136)	GLYXAMBI 25 mg/5 mg (n=137)
Overall (%)	2.2%	3.6%
Severe (%)	0%	0%

<sup>a</sup>Overall hypoglycemic events: plasma or capillary glucose of less than or equal to 70 mg/dL or requiring assistance

<sup>b</sup>Severe hypoglycemic events: requiring assistance regardless of blood glucose

### *Laboratory Tests*

#### Empagliflozin and Linagliptin

Changes in laboratory findings in patients treated with the combination of empagliflozin and linagliptin included increases in cholesterol and hematocrit compared to baseline.

#### Empagliflozin

*Increase in Low-Density Lipoprotein Cholesterol (LDL-C):* Dose-related increases in low-density lipoprotein cholesterol (LDL-C) were observed in patients treated with empagliflozin. LDL-C increased by 2.3%, 4.6%, and 6.5% in patients treated with placebo, empagliflozin 10 mg, and empagliflozin 25 mg, respectively [see *Warnings and Precautions (5.8)*]. The range of mean baseline LDL-C levels was 90.3 to 90.6 mg/dL across treatment groups.

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