

**HIGHLIGHTS OF PRESCRIBING INFORMATION**

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

**JANUMET™ (sitagliptin/metformin HCl) tablets**  
Initial U.S. Approval: 2007

**WARNING: LACTIC ACIDOSIS**

*See full prescribing information for complete boxed warning.*

- Lactic acidosis can occur due to metformin accumulation. The risk increases with conditions such as sepsis, dehydration, excess alcohol intake, hepatic insufficiency, renal impairment, and acute congestive heart failure. (5.1)
- Symptoms include malaise, myalgias, respiratory distress, increasing somnolence, and nonspecific abdominal distress. Laboratory abnormalities include low pH, increased anion gap and elevated blood lactate. (5.1)
- If acidosis is suspected, discontinue JANUMET and hospitalize the patient immediately. (5.1)

**INDICATIONS AND USAGE**

JANUMET is indicated as an adjunct to diet and exercise to improve glycemic control in adult patients with type 2 diabetes mellitus who are not adequately controlled on metformin or sitagliptin alone or in patients already being treated with the combination of sitagliptin and metformin. (1)

Important Limitation of Use: JANUMET should not be used in patients with type 1 diabetes or for the treatment of diabetic ketoacidosis. (1)

**DOSAGE AND ADMINISTRATION**

- Individualize the starting dose of JANUMET based on the patient's current regimen. (2.1)
- May adjust the dosing based on effectiveness and tolerability while not exceeding the maximum recommended daily dose of 100 mg sitagliptin and 2000 mg metformin. (2.1)
- JANUMET should be given twice daily with meals, with gradual dose escalation, to reduce the gastrointestinal (GI) side effects due to metformin. (2.1)

**DOSAGE FORMS AND STRENGTHS**

Tablets: 50 mg sitagliptin/500 mg metformin HCl and 50 mg sitagliptin/1000 mg metformin HCl (3)

**CONTRAINDICATIONS**

- Renal disease or renal dysfunction, e.g., serum creatinine levels  $\geq 1.5$  mg/dL [males],  $\geq 1.4$  mg/dL [females] or abnormal creatinine clearance. (4, 5.1, 5.3)
- Acute or chronic metabolic acidosis, including diabetic ketoacidosis, with or without coma. (4, 5.1)
- Temporarily discontinue JANUMET in patients undergoing radiologic studies involving intravascular administration of iodinated contrast materials. (4, 5.1, 5.10)

**WARNINGS AND PRECAUTIONS**

- Avoid JANUMET use in patients with evidence of hepatic disease. (5.1, 5.2)
- Before initiation of therapy with JANUMET and at least annually thereafter, assess renal function and verify as normal. (4, 5.1, 5.3)
- Measure hematologic parameters annually. (5.4, 6.1)
- Warn patients against excessive alcohol intake. (5.1, 5.5)
- May need to discontinue JANUMET and temporarily use insulin during periods of stress and decreased intake of fluids and food as may occur with fever, trauma, infection or surgery. (5.6, 5.7)
- Promptly evaluate patients previously controlled on JANUMET who develop laboratory abnormalities or clinical illness for evidence of ketoacidosis or lactic acidosis. (5.1, 5.7)

**ADVERSE REACTIONS**

- The most common adverse experience in sitagliptin monotherapy reported regardless of investigator assessment of causality in  $\geq 5\%$  of patients and more commonly than in patients given placebo was nasopharyngitis. (6.1)
- The most common (>5%) established adverse reactions due to initiation of metformin therapy are diarrhea, nausea/vomiting, flatulence, abdominal discomfort, indigestion, asthenia, and headache. (6.1)

**To report SUSPECTED ADVERSE REACTIONS, contact Merck & Co., Inc. at 1-877-888-4231 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).**

**DRUG INTERACTIONS**

- Cationic drugs eliminated by renal tubular secretion: Use with caution. (5.9, 7.1)

**USE IN SPECIFIC POPULATIONS**

- Safety and effectiveness of JANUMET in children under 18 years have not been established. (8.4)

**See 17 for PATIENT COUNSELING INFORMATION and FDA-approved patient labeling.**

**Revised: Mar 2007**

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**FULL PRESCRIBING INFORMATION**

**WARNING: LACTIC ACIDOSIS**

Lactic acidosis is a rare, but serious complication that can occur due to metformin accumulation. The risk increases with conditions such as sepsis, dehydration, excess alcohol intake, hepatic insufficiency, renal impairment, and acute congestive heart failure.

The onset is often subtle, accompanied only by nonspecific symptoms such as malaise, myalgias, respiratory distress, increasing somnolence, and nonspecific abdominal distress.

Laboratory abnormalities include low pH, increased anion gap and elevated blood lactate.

If acidosis is suspected, JANUMET<sup>1</sup> should be discontinued and the patient hospitalized immediately. [See Warnings and Precautions (5.1).]

**1 INDICATIONS AND USAGE**

JANUMET is indicated as an adjunct to diet and exercise to improve glycemic control in adult patients with type 2 diabetes mellitus who are not adequately controlled on metformin or sitagliptin alone or in patients already being treated with the combination of sitagliptin and metformin.

*Important Limitations of Use*

JANUMET should not be used in patients with type 1 diabetes or for the treatment of diabetic ketoacidosis.

**2 DOSAGE AND ADMINISTRATION**

**2.1 Recommended Dosing**

The dosage of antihyperglycemic therapy with JANUMET should be individualized on the basis of the patient's current regimen, effectiveness, and tolerability while not exceeding the maximum recommended daily dose of 100 mg sitagliptin and 2000 mg metformin.

JANUMET should generally be given twice daily with meals, with gradual dose escalation, to reduce the gastrointestinal (GI) side effects due to metformin.

The starting dose of JANUMET should be based on the patient's current regimen. JANUMET should be given twice daily with meals. The following doses are available:

50 mg sitagliptin/500 mg metformin hydrochloride

50 mg sitagliptin/1000 mg metformin hydrochloride.

*Patients inadequately controlled on metformin monotherapy*

For patients not adequately controlled on metformin alone, the usual starting dose of JANUMET should be equal to 100 mg total daily dose (50 mg twice daily) of sitagliptin plus the dose of metformin already being taken. For patients taking metformin 850 mg twice daily, the recommended starting dose of JANUMET is 50 mg sitagliptin/1000 mg metformin hydrochloride twice daily.

*Patients inadequately controlled on sitagliptin monotherapy*

For patients not adequately controlled on sitagliptin alone, the usual starting dose of JANUMET is 50 mg sitagliptin/500 mg metformin hydrochloride twice daily. Patients may be titrated up to 50 mg sitagliptin/1000 mg metformin hydrochloride twice daily. Patients taking sitagliptin monotherapy dose-adjusted for renal insufficiency should not be switched to JANUMET [see *Contraindications (4)*].

*Patients switching from sitagliptin co-administered with metformin*

For patients switching from sitagliptin co-administered with metformin, JANUMET may be initiated at the dose of sitagliptin and metformin already being taken.

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

### 3 DOSAGE FORMS AND STRENGTHS

- 50 mg/500 mg tablets are light pink, capsule-shaped, film-coated tablets with “575” debossed on one side.
- 50 mg/1000 mg tablets are red, capsule-shaped, film-coated tablets with “577” debossed on one side.

### 4 CONTRAINDICATIONS

JANUMET (sitagliptin/metformin HCl) is contraindicated in patients with:

- Renal disease or renal dysfunction, e.g., as suggested by serum creatinine levels  $\geq 1.5$  mg/dL [males],  $\geq 1.4$  mg/dL [females] or abnormal creatinine clearance which may also result from conditions such as cardiovascular collapse (shock), acute myocardial infarction, and septicemia [see *Warnings and Precautions (5.1)*].
- Acute or chronic metabolic acidosis, including diabetic ketoacidosis, with or without coma.

JANUMET should be temporarily discontinued in patients undergoing radiologic studies involving intravascular administration of iodinated contrast materials, because use of such products may result in acute alteration of renal function [see *Warnings and Precautions (5.10)*].

### 5 WARNINGS AND PRECAUTIONS

#### 5.1 Lactic Acidosis

*Metformin hydrochloride*

Lactic acidosis is a rare, but serious, metabolic complication that can occur due to metformin accumulation during treatment with JANUMET; when it occurs, it is fatal in approximately 50% of cases. Lactic acidosis may also occur in association with a number of pathophysiologic conditions, including diabetes mellitus, and whenever there is significant tissue hypoperfusion and hypoxemia. Lactic acidosis is characterized by elevated blood lactate levels ( $>5$  mmol/L), decreased blood pH, electrolyte disturbances with an increased anion gap, and an increased lactate/pyruvate ratio. When metformin is implicated as the cause of lactic acidosis, metformin plasma levels  $>5$   $\mu$ g/mL are generally found.

The reported incidence of lactic acidosis in patients receiving metformin hydrochloride is very low (approximately 0.03 cases/1000 patient-years, with approximately 0.015 fatal cases/1000 patient-years). In more than 20,000 patient-years exposure to metformin in clinical trials, there were no reports of lactic acidosis. Reported cases have occurred primarily in diabetic patients with significant renal insufficiency, including both intrinsic renal disease and renal hypoperfusion, often in the setting of multiple concomitant medical/surgical problems and multiple concomitant medications. Patients with congestive heart failure requiring pharmacologic management, in particular those with unstable or acute congestive heart failure

who are at risk of hypoperfusion and hypoxemia, are at increased risk of lactic acidosis. The risk of lactic acidosis increases with the degree of renal dysfunction and the patient's age. The risk of lactic acidosis may, therefore, be significantly decreased by regular monitoring of renal function in patients taking metformin and by use of the minimum effective dose of metformin. In particular, treatment of the elderly should be accompanied by careful monitoring of renal function. Metformin treatment should not be initiated in patients  $\geq 80$  years of age unless measurement of creatinine clearance demonstrates that renal function is not reduced, as these patients are more susceptible to developing lactic acidosis. In addition, metformin should be promptly withheld in the presence of any condition associated with hypoxemia, dehydration, or sepsis. Because impaired hepatic function may significantly limit the ability to clear lactate, metformin should generally be avoided in patients with clinical or laboratory evidence of hepatic disease. Patients should be cautioned against excessive alcohol intake, either acute or chronic, when taking metformin, since alcohol potentiates the effects of metformin hydrochloride on lactate metabolism. In addition, metformin should be temporarily discontinued prior to any intravascular radiocontrast study and for any surgical procedure [see *Warnings and Precautions* (5.3, 5.5, 5.6, 5.10)].

The onset of lactic acidosis often is subtle, and accompanied only by nonspecific symptoms such as malaise, myalgias, respiratory distress, increasing somnolence, and nonspecific abdominal distress. There may be associated hypothermia, hypotension, and resistant bradyarrhythmias with more marked acidosis. The patient and the patient's physician must be aware of the possible importance of such symptoms and the patient should be instructed to notify the physician immediately if they occur [see *Warnings and Precautions* (5.11)]. Metformin should be withdrawn until the situation is clarified. Serum electrolytes, ketones, blood glucose, and if indicated, blood pH, lactate levels, and even blood metformin levels may be useful. Once a patient is stabilized on any dose level of metformin, gastrointestinal symptoms, which are common during initiation of therapy, are unlikely to be drug related. Later occurrence of gastrointestinal symptoms could be due to lactic acidosis or other serious disease.

Levels of fasting venous plasma lactate above the upper limit of normal but less than 5 mmol/L in patients taking metformin do not necessarily indicate impending lactic acidosis and may be explainable by other mechanisms, such as poorly controlled diabetes or obesity, vigorous physical activity, or technical problems in sample handling [see *Warnings and Precautions* (5.7, 5.12)].

Lactic acidosis should be suspected in any diabetic patient with metabolic acidosis lacking evidence of ketoacidosis (ketonuria and ketonemia).

Lactic acidosis is a medical emergency that must be treated in a hospital setting. In a patient with lactic acidosis who is taking metformin, the drug should be discontinued immediately and general supportive measures promptly instituted. Because metformin hydrochloride is dialyzable (with a clearance of up to 170 mL/min under good hemodynamic conditions), prompt hemodialysis is recommended to correct the acidosis and remove the accumulated metformin. Such management often results in prompt reversal of symptoms and recovery [see *Contraindications* (4); *Warnings and Precautions* (5.5, 5.6, 5.9, 5.10, 5.11)].

## 5.2 Impaired Hepatic Function

Since impaired hepatic function has been associated with some cases of lactic acidosis, JANUMET should generally be avoided in patients with clinical or laboratory evidence of hepatic disease.

## 5.3 Assessment of Renal Function

Metformin and sitagliptin are known to be substantially excreted by the kidney. The risk of metformin accumulation and lactic acidosis increases with the degree of impairment of renal function. Thus, patients with serum creatinine levels above the upper limit of normal for their age should not receive JANUMET. In the elderly, JANUMET should be carefully titrated to establish the minimum dose for adequate glycemic effect, because aging can be associated with reduced renal function. [See *Warnings and Precautions* (5.1) and *Use in Specific Populations* (8.5).]

Before initiation of therapy with JANUMET and at least annually thereafter, renal function should be assessed and verified as normal. In patients in whom development of renal dysfunction is anticipated, particularly in elderly patients, renal function should be assessed more frequently and JANUMET discontinued if evidence of renal impairment is present.

## 5.4 Vitamin B<sub>12</sub> Levels

In controlled clinical trials of metformin of 29 weeks duration, a decrease to subnormal levels of previously normal serum Vitamin B<sub>12</sub> levels, without clinical manifestations, was observed in approximately 7% of patients. Such decrease, possibly due to interference with B<sub>12</sub> absorption from the B<sub>12</sub>-intrinsic factor complex, is, however, very rarely associated with anemia and appears to be rapidly

reversible with discontinuation of metformin or Vitamin B<sub>12</sub> supplementation. Measurement of hematologic parameters on an annual basis is advised in patients on JANUMET and any apparent abnormalities should be appropriately investigated and managed. [See *Adverse Reactions* (6.1).]

Certain individuals (those with inadequate Vitamin B<sub>12</sub> or calcium intake or absorption) appear to be predisposed to developing subnormal Vitamin B<sub>12</sub> levels. In these patients, routine serum Vitamin B<sub>12</sub> measurements at two- to three-year intervals may be useful.

### 5.5 Alcohol Intake

Alcohol is known to potentiate the effect of metformin on lactate metabolism. Patients, therefore, should be warned against excessive alcohol intake, acute or chronic, while receiving JANUMET.

### 5.6 Surgical Procedures

Use of JANUMET should be temporarily suspended for any surgical procedure (except minor procedures not associated with restricted intake of food and fluids) and should not be restarted until the patient's oral intake has resumed and renal function has been evaluated as normal.

### 5.7 Change in Clinical Status of Patients with Previously Controlled Type 2 Diabetes

A patient with type 2 diabetes previously well controlled on JANUMET who develops laboratory abnormalities or clinical illness (especially vague and poorly defined illness) should be evaluated promptly for evidence of ketoacidosis or lactic acidosis. Evaluation should include serum electrolytes and ketones, blood glucose and, if indicated, blood pH, lactate, pyruvate, and metformin levels. If acidosis of either form occurs, JANUMET must be stopped immediately and other appropriate corrective measures initiated.

### 5.8 Use with Medications Known to Cause Hypoglycemia

#### *Sitagliptin*

In clinical trials of sitagliptin as monotherapy and sitagliptin as part of combination therapy with metformin or pioglitazone, rates of hypoglycemia reported with sitagliptin were similar to rates in patients taking placebo. The use of sitagliptin in combination with medications known to cause hypoglycemia, such as sulfonylureas or insulin, has not been adequately studied.

#### *Metformin hydrochloride*

Hypoglycemia does not occur in patients receiving metformin alone under usual circumstances of use, but could occur when caloric intake is deficient, when strenuous exercise is not compensated by caloric supplementation, or during concomitant use with other glucose-lowering agents (such as sulfonylureas and insulin) or ethanol. Elderly, debilitated, or malnourished patients, and those with adrenal or pituitary insufficiency or alcohol intoxication are particularly susceptible to hypoglycemic effects. Hypoglycemia may be difficult to recognize in the elderly, and in people who are taking β-adrenergic blocking drugs.

### 5.9 Concomitant Medications Affecting Renal Function or Metformin Disposition

Concomitant medication(s) that may affect renal function or result in significant hemodynamic change or may interfere with the disposition of metformin, such as cationic drugs that are eliminated by renal tubular secretion [see *Drug Interactions* (7.1)], should be used with caution.

### 5.10 Radiologic Studies with Intravascular Iodinated Contrast Materials

Intravascular contrast studies with iodinated materials (for example, intravenous urogram, intravenous cholangiography, angiography, and computed tomography (CT) scans with intravascular contrast materials) can lead to acute alteration of renal function and have been associated with lactic acidosis in patients receiving metformin [see *Contraindications* (4)]. Therefore, in patients in whom any such study is planned, JANUMET should be temporarily discontinued at the time of or prior to the procedure, and withheld for 48 hours subsequent to the procedure and reinstated only after renal function has been re-evaluated and found to be normal.

### 5.11 Hypoxic States

Cardiovascular collapse (shock) from whatever cause, acute congestive heart failure, acute myocardial infarction and other conditions characterized by hypoxemia have been associated with lactic acidosis and may also cause prerenal azotemia. When such events occur in patients on JANUMET therapy, the drug should be promptly discontinued.

### 5.12 Loss of Control of Blood Glucose

When a patient stabilized on any diabetic regimen is exposed to stress such as fever, trauma, infection, or surgery, a temporary loss of glycemic control may occur. At such times, it may be necessary to withhold JANUMET and temporarily administer insulin. JANUMET may be reinstated after the acute episode is resolved.

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