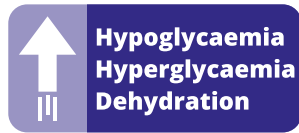


Start the conversation early: Actively support your adult patients with type 2 diabetes during Ramadan



In 2022, Ramadan will take place on or around Saturday 2 April to Sunday 1 May^{1*}



Fasting is associated with increased risk of complications in T2D¹



Some adults with T2D choose to fast during Ramadan despite being exempt due to the health risk²



Patient education before Ramadan may aid safer fasting in adults with T2D²

Step 1

Use a risk stratification tool to assess individuals with T2D who are considering fasting 6–8 weeks before Ramadan starts²
If an individual personally chooses to fast, discuss techniques and strategies to minimise risk

| Risk assessment based on the International Diabetes Federation updated guidelines 2021 ² | |
|---|---|
| High risk of developing complications when fasting | Individuals should be advised not to fast |
| Moderate risk of developing complications when fasting | Individuals are advised not to fast |
| Low risk of developing complications when fasting | Individuals can fast |

Step 2

Agree a management plan with your patient²
This may include advice on:



Fluid intake and meal planning



Exercise



Frequency of blood glucose monitoring

Medication and insulin modifications during Ramadan²

- Dose modifications are generally required during Ramadan if individuals are taking: metformin, SUs, insulin secretagogues or insulin. Certain GLP-1 receptor agonists require dose titration prior to Ramadan
- No dose modifications are required during Ramadan if individuals are taking:
 - DPP-4 inhibitors, SGLT2 inhibitors and TZDs (dose should be taken with Iftar, the meal taken when the fast is broken at sunset)
- Risk of hypoglycaemia may be amplified in people with type 2 diabetes on multiple antidiabetic therapy.³ Risk of hypoglycaemia is greatest among individuals on a combination of a basal insulin, DPP-4 inhibitor and metformin and those on ≥ 4 glucose-lowering therapies⁴
- When linagliptin is used in combination with a SU or with insulin, a lower dose of the SU or insulin may be considered to reduce the risk of hypoglycaemia⁵



Discuss with the person with T2D situations when they should break their fast:²

- Blood glucose < 3.9 mmol/L; re-check blood glucose levels within 1 hour to see if blood glucose levels have risen to between 3.9–5.0 mmol/L
- Blood glucose levels > 16.6 mmol/L
- If the individual has symptoms of hypoglycaemia, hyperglycaemia, dehydration or acute illness

Step 3

Book a post-Ramadan review with the person with T2D²
This may include:



Discussion about medication and regimen readjustments



Assessment of how the patient handled fasting during Ramadan



Due to the progressive nature of T2D, fasting safely one year does not guarantee that a person can fast safely the next year

The content of this document has been reviewed by Professor Wasim Hanif, Professor Diabetes & Endocrinology, Birmingham

Resources

- Diabetes UK (2021) Ramadan and diabetes. Available at: <https://www.diabetes.org.uk/guide-to-diabetes/managing-your-diabetes/ramadan>
- IDF and DARIA (2021) Diabetes and Ramadan practical guidelines 2021. Available at: <https://www.daralliance.org/daralliance/idf-dar-practical-guidelines-2021>
- Hanif W (2020). The South Asian Health Foundation (UK) Guidelines for Managing Diabetes during Ramadan: 2020 Update. Available at: <https://www.sahf.org.uk/publications>
- Ibrahim M et al. BMJ Open Diab Res Care 2020;8:e001248

*The Fast of Ramadan lasts the entire month, which can be 29 or 30 days, depending on the sightings of the moon²

DARIA: Diabetes and Ramadan International Alliance; DPP-4: dipeptidyl peptidase-4; IDF: International Diabetes Federation; SGLT2: sodium-glucose co-transporter-2; SU: sulphonylurea; T2D: type 2 diabetes; TZD: thiazolidinedione.

1. Diabetes UK (2021) Ramadan and diabetes. Available at: <https://www.diabetes.org.uk/guide-to-diabetes/managing-your-diabetes/ramadan> (accessed December 2021); 2. IDF and DARIA (2021) Diabetes and Ramadan practical guidelines 2021. Available at: <https://www.daralliance.org/daralliance/idf-dar-practical-guidelines-2021/> (accessed December 2021); 3. Jabbar A et al. Diabetes Res Clin Pract 2017;132:19–26; 4. Elhadd T et al. J Diabetes Metab Disord 2018;17:309–314; 5. TRAJENTA® (linagliptin) Summary of Product Characteristics

Prescribing Information (Great Britain) TRAJENTA® (Linagliptin)

Film-coated tablets containing 5 mg linagliptin. **Indication:** Trajenta is indicated in adults with type 2 diabetes mellitus as an adjunct to diet and exercise to improve glycaemic control as: monotherapy when metformin is inappropriate due to intolerance, or contraindicated due to renal impairment; combination therapy in combination with other medicinal products for the treatment of diabetes, including insulin, when these do not provide adequate glycaemic control. **Dose and Administration:** 5 mg once daily. If added to metformin, the dose of metformin should be maintained and linagliptin administered concomitantly. When used in combination with a sulphonylurea or with insulin, a lower dose of the sulphonylurea or insulin, may be considered to reduce the risk of hypoglycaemia. **Renal impairment:** no dose adjustment required. **Hepatic impairment:** pharmacokinetic studies suggest that no dose adjustment is required for patients with hepatic impairment but clinical experience in such patients is lacking. **Elderly:** no dose adjustment is necessary based on age. **Paediatric population:** the safety and efficacy of linagliptin in children and adolescents has not yet been established. No data are available. The tablets can be taken with or without a meal at any time of the day. If a dose is missed, it should be taken as soon as possible but a double dose should not be taken on the same day. **Contraindications:** Hypersensitivity to the active substance or to any of the excipients. **Warnings and Precautions:** Linagliptin should not be used in patients with type 1 diabetes or for the treatment of diabetic ketoacidosis. **Hypoglycaemia:** Caution is advised when linagliptin is used in combination with a sulphonylurea and/or insulin; a dose reduction of the sulphonylurea or insulin may be considered. **Acute pancreatitis:** Acute pancreatitis has been observed in patients taking linagliptin. Patients should be informed of the characteristic symptoms of acute pancreatitis. If pancreatitis is suspected, Trajenta should be discontinued. If acute pancreatitis is confirmed, Trajenta should not be restarted. Caution should be exercised in patients with a history of pancreatitis. **Bullous pemphigoid:** Bullous pemphigoid has been observed in patients taking Linagliptin. If bullous pemphigoid is suspected, Trajenta should be discontinued. **Interactions:** Linagliptin is a weak competitive and a weak to moderate mechanism-based inhibitor of CYP isozyme CYP3A4, but does not inhibit other CYP isozymes. It is not an inducer of CYP isozymes. Linagliptin is a P-glycoprotein substrate and inhibits P-glycoprotein mediated transport of digoxin with low potency. Based on these results and *in vivo* interaction studies, linagliptin is considered unlikely to cause

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Prescribing Information (Northern Ireland) TRAJENTA® (Linagliptin)

Film-coated tablets containing 5 mg linagliptin. **Indication:** Trajenta is indicated in adults with type 2 diabetes mellitus as an adjunct to diet and exercise to improve glycaemic control as: monotherapy when metformin is inappropriate due to intolerance, or contraindicated due to renal impairment; combination therapy in combination with other medicinal products for the treatment of diabetes, including insulin, when these do not provide adequate glycaemic control. **Dose and Administration:** 5 mg once daily. If added to metformin, the dose of metformin should be maintained and linagliptin administered concomitantly. When used in combination with a sulphonylurea or with insulin, a lower dose of the sulphonylurea or insulin, may be considered to reduce the risk of hypoglycaemia. **Renal impairment:** no dose adjustment required. **Hepatic impairment:** pharmacokinetic studies suggest that no dose adjustment is required for patients with hepatic impairment but clinical experience in such patients is lacking. **Elderly:** no dose adjustment is necessary based on age. **Paediatric population:** the safety and efficacy of linagliptin in children and adolescents has not yet been established. No data are available. The tablets can be taken with or without a meal at any time of the day. If a dose is missed, it should be taken as soon as possible but a double dose should not be taken on the same day. **Contraindications:** Hypersensitivity to the active substance or to any of the excipients. **Warnings and Precautions:** Linagliptin should not be used in patients with type 1 diabetes or for the treatment of diabetic ketoacidosis. **Hypoglycaemia:** Caution is advised when linagliptin is used in combination with a sulphonylurea and/or insulin; a dose reduction of the sulphonylurea or insulin may be considered. **Acute pancreatitis:** Acute pancreatitis has been observed in patients taking linagliptin. Patients should be informed of the characteristic symptoms of acute pancreatitis. If pancreatitis is suspected, Trajenta should be discontinued. If acute pancreatitis is confirmed, Trajenta should not be restarted. Caution should be exercised in patients with a history of pancreatitis. **Bullous pemphigoid:** Bullous pemphigoid has been observed in patients taking Linagliptin. If bullous pemphigoid is suspected, Trajenta should be discontinued. **Interactions:** Linagliptin is a weak competitive and a weak to moderate mechanism-based inhibitor of CYP isozyme CYP3A4, but does not inhibit other CYP isozymes. It is not an inducer of CYP isozymes. Linagliptin is a P-glycoprotein substrate and inhibits P-glycoprotein mediated transport of digoxin with low potency. Based on these results and *in vivo* interaction studies, linagliptin is considered unlikely to cause

PC-GB-104346 V2 Date of preparation September 2021

Prescribing Information (Ireland) TRAJENTA® (Linagliptin)

Film-coated tablets containing 5 mg linagliptin. **Indication:** Trajenta is indicated in adults with type 2 diabetes mellitus as an adjunct to diet and exercise to improve glycaemic control as: monotherapy when metformin is inappropriate due to intolerance, or contraindicated due to renal impairment; combination therapy in combination with other medicinal products for the treatment of diabetes, including insulin, when these do not provide adequate glycaemic control. **Dose and Administration:** 5 mg once daily. If added to metformin, the dose of metformin should be maintained and linagliptin administered concomitantly. When used in combination with a sulphonylurea or with insulin, a lower dose of the sulphonylurea or insulin, may be considered to reduce the risk of hypoglycaemia. **Renal impairment:** no dose adjustment required. **Hepatic impairment:** pharmacokinetic studies suggest that no dose adjustment is required for patients with hepatic impairment but clinical experience in such patients is lacking. **Elderly:** no dose adjustment is necessary based on age. **Paediatric population:** the safety and efficacy of linagliptin in children and adolescents has not yet been established. No data are available. The tablets can be taken with or without a meal at any time of the day. If a dose is missed, it should be taken as soon as possible but a double dose should not be taken on the same day. **Contraindications:** Hypersensitivity to the active substance or to any of the excipients. **Warnings and Precautions:** Linagliptin should not be used in patients with type 1 diabetes or for the treatment of diabetic ketoacidosis. **Hypoglycaemia:** Caution is advised when linagliptin is used in combination with a sulphonylurea and/or insulin; a dose reduction of the sulphonylurea or insulin may be considered. **Acute pancreatitis:** Acute pancreatitis has been observed in patients taking linagliptin. Patients should be informed of the characteristic symptoms of acute pancreatitis. If pancreatitis is suspected, Trajenta should be discontinued. If acute pancreatitis is confirmed, Trajenta should not be restarted. Caution should be exercised in patients with a history of pancreatitis. **Bullous pemphigoid:** Bullous pemphigoid has been observed in patients taking Linagliptin. If bullous pemphigoid is suspected, Trajenta should be discontinued. **Interactions:** Linagliptin is a weak competitive and a weak to moderate mechanism-based inhibitor of CYP isozyme CYP3A4, but does not inhibit other CYP isozymes. It is not an inducer of CYP isozymes. Linagliptin is a P-glycoprotein substrate and inhibits P-glycoprotein mediated transport of digoxin with low potency. Based on these results and *in vivo* interaction studies, linagliptin is considered unlikely to cause interactions with other P-glycoprotein substrates. *Effects of other medicinal products on linagliptin:* The risk

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interactions with other P-glycoprotein substrates. *Effects of other medicinal products on linagliptin:* The risk for clinically meaningful interactions by other medicinal products on linagliptin is low. Rifampicin: Multiple co-administration of 5 mg linagliptin with rifampicin, a potent inducer of P-glycoprotein and CYP3A4, decreased linagliptin steady state AUC and C_{max}. Thus, full efficacy of linagliptin in combination with strong P-glycoprotein inducers might not be achieved, particularly if administered long term. Co-administration with other potent inducers of P-glycoprotein and CYP3A4, such as carbamazepine, phenobarbital and phenytoin has not been studied. *Effects of linagliptin on other medicinal products:* In clinical studies linagliptin had no clinically relevant effect on the pharmacokinetics of metformin, glibenclamide, simvastatin, warfarin, digoxin or oral contraceptives (please refer to Summary of Product Characteristics for a full list of interactions and clinical data). **Fertility, pregnancy and lactation:** The use of linagliptin has not been studied in pregnant women. As a precautionary measure, avoid use during pregnancy. A risk to the breast-fed child cannot be excluded. A decision must be made whether to discontinue breast-feeding or to discontinue/abstain from linagliptin therapy taking into account the benefit of breast-feeding for the child and the benefit of therapy for the woman. No studies on the effect on human fertility have been conducted for linagliptin. **Undesirable effects:** Adverse reactions reported in patients who received linagliptin 5 mg daily as monotherapy or as add-on therapies in clinical trials and from post-marketing experience. Frequencies are defined as very common ($\geq 1/10$), common ($\geq 1/100$ to $< 1/100$), uncommon ($\geq 1/1,000$ to $< 1/1000$), rare ($\geq 1/10,000$ to $< 1/10,000$) or very rare ($< 1/10,000$). **Adverse reactions with linagliptin 5 mg daily as monotherapy:** Common: lipase increased. Uncommon: nasopharyngitis; hypersensitivity; cough; rash; amylase increased. Rare: pancreatitis; angioedema; urticaria; bullous pemphigoid. **Adverse reaction with linagliptin in combination with metformin plus sulphonylurea:** Very common: hypoglycaemia. Adverse reaction with linagliptin in combination with insulin: Uncommon: constipation. Prescribers should consult the Summary of Product Characteristics for further information on side effects. **Pack sizes and NHS price:** 28 tablets £33.26. **Legal category:** POM. **MA number:** PLGB 14598/0225. **Marketing Authorisation Holder:** Boehringer Ingelheim International GmbH, D-55216 Ingelheim am Rhein, Germany. Prescribers should consult the Summary of Product Characteristics for full prescribing information. **Prepared in** September 2021.

interactions with other P-glycoprotein substrates. *Effects of other medicinal products on linagliptin:* The risk for clinically meaningful interactions by other medicinal products on linagliptin is low. Rifampicin: Multiple co-administration of 5 mg linagliptin with rifampicin, a potent inducer of P-glycoprotein and CYP3A4, decreased linagliptin steady state AUC and C_{max}. Thus, full efficacy of linagliptin in combination with strong P-glycoprotein inducers might not be achieved, particularly if administered long term. Co-administration with other potent inducers of P-glycoprotein and CYP3A4, such as carbamazepine, phenobarbital and phenytoin has not been studied. *Effects of linagliptin on other medicinal products:* In clinical studies linagliptin had no clinically relevant effect on the pharmacokinetics of metformin, glibenclamide, simvastatin, warfarin, digoxin or oral contraceptives (please refer to Summary of Product Characteristics for a full list of interactions and clinical data). **Fertility, pregnancy and lactation:** The use of linagliptin has not been studied in pregnant women. As a precautionary measure, avoid use during pregnancy. A risk to the breast-fed child cannot be excluded. A decision must be made whether to discontinue breast-feeding or to discontinue/abstain from linagliptin therapy taking into account the benefit of breast-feeding for the child and the benefit of therapy for the woman. No studies on the effect on human fertility have been conducted for linagliptin. **Undesirable effects:** Adverse reactions reported in patients who received linagliptin 5 mg daily as monotherapy or as add-on therapies in clinical trials and from post-marketing experience. Frequencies are defined as very common ($\geq 1/10$), common ($\geq 1/100$ to $< 1/100$), uncommon ($\geq 1/1,000$ to $< 1/1000$), rare ($\geq 1/10,000$ to $< 1/10,000$) or very rare ($< 1/10,000$). **Adverse reactions with linagliptin 5 mg daily as monotherapy:** Common: lipase increased. Uncommon: nasopharyngitis; hypersensitivity; cough; rash; amylase increased. Rare: pancreatitis; angioedema; urticaria; bullous pemphigoid. **Adverse reaction with linagliptin in combination with metformin plus sulphonylurea:** Very common: hypoglycaemia. Adverse reaction with linagliptin in combination with insulin: Uncommon: constipation. Prescribers should consult the Summary of Product Characteristics for further information on side effects. **Pack sizes and NHS price:** 28 tablets £33.26. **Legal category:** POM. **MA number:** EU/11/1707/003. **Marketing Authorisation Holder:** Boehringer Ingelheim International GmbH, D-55216 Ingelheim am Rhein, Germany. Prescribers should consult the Summary of Product Characteristics for full prescribing information. **Prepared in** September 2021.

for clinically meaningful interactions by other medicinal products on linagliptin is low. Rifampicin: Multiple co-administration of 5 mg linagliptin with rifampicin, a potent inducer of P-glycoprotein and CYP3A4, decreased linagliptin steady state AUC and C_{max}. Thus, full efficacy of linagliptin in combination with strong P-glycoprotein inducers might not be achieved, particularly if administered long term. Co-administration with other potent inducers of P-glycoprotein and CYP3A4, such as carbamazepine, phenobarbital and phenytoin has not been studied. *Effects of linagliptin on other medicinal products:* In clinical studies linagliptin had no clinically relevant effect on the pharmacokinetics of metformin, glibenclamide, simvastatin, warfarin, digoxin or oral contraceptives (please refer to Summary of Product Characteristics for a full list of interactions and clinical data). **Fertility, pregnancy and lactation:** The use of linagliptin has not been studied in pregnant women. As a precautionary measure, avoid use during pregnancy. A risk to the breast-fed child cannot be excluded. A decision must be made whether to discontinue breast-feeding or to discontinue/abstain from linagliptin therapy taking into account the benefit of breast-feeding for the child and the benefit of therapy for the woman. No studies on the effect on human fertility have been conducted for linagliptin. **Undesirable effects:** Adverse reactions reported in patients who received linagliptin 5 mg daily as monotherapy or as add-on therapies in clinical trials and from post-marketing experience. Frequencies are defined as very common ($\geq 1/10$), common ($\geq 1/100$ to $< 1/100$), uncommon ($\geq 1/1,000$ to $< 1/1000$), rare ($\geq 1/10,000$ to $< 1/10,000$) or very rare ($< 1/10,000$). **Adverse reactions with linagliptin 5 mg daily as monotherapy:** Common: lipase increased. Uncommon: nasopharyngitis; hypersensitivity; cough; rash; amylase increased. Rare: pancreatitis; angioedema; urticaria; bullous pemphigoid. **Adverse reaction with linagliptin in combination with metformin plus sulphonylurea:** Very common: hypoglycaemia. **Adverse reaction with linagliptin in combination with insulin:** Uncommon: constipation. Prescribers should consult the Summary of Product Characteristics for further information on side effects. **Pack sizes:** 28 tablets. **Legal category:** POM. **MA number:** EU/11/1707/003. **Marketing Authorisation Holder:** Boehringer Ingelheim International GmbH, D-55216 Ingelheim am Rhein, Germany. Prescribers should consult the Summary of Product Characteristics for full prescribing information. Additional information is available on request from Boehringer Ingelheim Ireland Ltd, The Crescent Building, Northwood, Santry, Dublin 9. **Prepared in** September 2021.

Adverse events should be reported. Reporting forms and information can be found at <https://www.mhra.gov.uk/yellowcard> (UK) or <https://www.hpra.ie/homepage/about-us/report-an-issue> (IRE). Adverse events should also be reported to Boehringer Ingelheim Drug Safety on 0800 328 1627 (freephone) (UK) or 01 2913960, Fax: +44 1344 742661, or by e-mail: PV_local_UK_Ireland@boehringer-ingelheim.com (IRE).