GP NURSE PHARMACIST

Multidisciplinary management of type 2 diabetes

Minimising hypoglycaemia risk in type 2 diabetes

Achieving optimal glycaemic control is fundamental to the effective management of type 2 diabetes (T2D). Hypoglycaemia is one of the major limiting factors to achieving T2D control.

Hypoglycaemia due to glucose-lowering treatments for T2D can adversely affect a person's quality of life, medication adherence and treatment satisfaction, but there are steps healthcare professionals can take to minimise risk and positively impact the patient's health.

Risk factors for hypoglycaemia

- Advancing age[1,2]
- Congestive heart failure[1]
- Renal impairment[1,2]
- Multiple comorbidities[1,2]
- Amongst people with T2D, the prevalence of mild/moderate hypoglycaemia can be as high as **45%**[4]
- Tight glucose control[1,2]
- Fasting (e.g. due to religious beliefs)[3]
- Long duration of T2D[1,2]

Negative effects of hypoglycaemia

- Quality of life[1] and health status[5]
- Cognitive[2] function and mood[1]
- Physical symptoms include:[6] headaches, sweating, shakiness, weakness, lack of coordination, fainting and dizziness

Severe hypoglycaemia in T2D: hospitalisation and mortality

0.3 per 100 patient-years
Rate of hospitalisation for hypoglycaemia in T2D[7]

5.04 days
Average length of stay for people with T2D admitted for hypoglycaemia (95% CI: 4.46–5.71)[8]

19.5% vs. 9%
All-cause mortality rate over 5 years in people with T2D who had experienced ≥1 episodes of severe hypoglycaemia and those who had not respectively (HR: 3.27, 95% CI: 2.29–4.65)[9]

Steps to minimise the risk of hypoglycaemia in your patients

- **Select an appropriate diet, lifestyle and therapy regimen to treat T2D:**
  - Balance the glucose-lowering efficacy of therapy with its risk of causing hypoglycaemia[10]
  - Support the person to aim for an HbA_{1c} level of 53 mmol/mol (7.0%) or an alternative individualised HbA_{1c} target[10]
- **Assess patients for hypoglycaemia at every appointment, particularly those taking medication that increases risk, e.g. insulin or a sulphonylurea[1]**
- **Consider each risk factor for hypoglycaemia and whether it can be modified[1]**
- **Educate patients about the signs of hypoglycaemia[1]**
- **Simplify complex treatment regimens[1]**
- **Monitor hospitalised T2D patients for hypoglycaemia[11]**

Medication considerations

Level of risk for hypoglycaemia when used as add-on to metformin:[12]

High Risk
Insulin

Low risk
Pioglitazone

Low risk
GLP-1 receptor agonists

Moderate risk
Sulphonylureas

Low risk
DPP-4 inhibitors

Low risk
SGLT2 inhibitors

References

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Abbreviations

CI, confidence interval; DPP-4, dipeptidyl peptidase-4; HR, hazard ratio; SGLT2, sodium-glucose cotransporter 2; GLP-1, glucagon-like peptide-1

OmniaMed

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Prescribing Information (UK)
TRAJENTA® Film-coated tablets containing 5 mg linagliptin

Indication: Trajenta is indicated in adults with type 2 diabetes mellitus as an adunct 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 however, clinical experience in patients > 80 years of age is limited and caution should be exercised when treating this population. Paediatric population: the safety and efficacy of linagliptin in children and adolescents has not yet been established. No data are available. Take the tablets within 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. 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: Post-marketing experience of linagliptin there have been spontaneously reported adverse reactions of acute pancreatitis. 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: 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-gp substrates. The risk for clinically meaningful interactions by other medicinal products on linagliptin is low and 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 information on clinical data). **Fertility, pregnancy and lactation:** Avoid use during pregnancy. A risk to the newborn/infant 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 of linagliptin on 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 (frequencies identified from pooled analysis of placebo-controlled studies) in clinical trial and from post-marketing experience. The adverse reactions are listed by absolute frequency. Frequencies are defined as very common (≥ 1/10), common (≥ 1/100 to < 1/10), uncommon (≥ 1/1,000 to < 1/100), rare (≥ 1/10,000 to < 1/1,000), very rare (< 1/10,000) or not known (cannot be estimated from the available data). Very common: hypoglycaemia (combination with/add-on to metformin and sulphonylurea). Common: lower increased (monotherapy; combination with/add-on to metformin; combination with/add-on to metformin and sulphonylurea; combination with/add-on to insulin; combination with/add-on to metformin and empagliflozin). Uncommon: nasopharyngitis (monotherapy; combination with/add-on to metformin; combination with/add-on to insulin); hypersensitivity e.g. bronchial hyperreactivity (monotherapy; combination with/add-on to metformin; combination with/add-on to metformin and sulphonylurea; combination with/add-on to insulin); cough (monotherapy; combination with/add-on to metformin; combination with/add-on to insulin); pancreatitis (combination with/add-on to insulin); constipation (combination with/add-on to insulin); rash (monotherapy; combination with/add-on to insulin); urticaria (monotherapy; combination with/add-on to metformin; combination with/add-on to metformin and sulphonylurea; combination with/add-on to insulin); amylase increased (combination with/add-on to metformin; combination with/add-on to metformin and sulphonylurea; combination with/add-on to metformin and empagliflozin). Rare: angioedema (monotherapy; combination with/add-on to metformin; combination with/add-on to metformin and sulphonylurea; combination with/add-on to metformin and sulphonylurea; combination with/add-on to metformin and empagliflozin); lipase increased (combination with/add-on to metformin and sulphonylurea; combination with/add-on to metformin and empagliflozin); hypersensitivity e.g. bronchial hyperreactivity (combination with/add-on to metformin and empagliflozin); cough (combination with/add-on to metformin and sulphonylurea; combination with/add-on to metformin and empagliflozin); pancreatitis (monotherapy; combination with/add-on to metformin; combination with/add-on to metformin and sulphonylurea; combination with/add-on to insulin); amylase increased (combination with/add-on to insulin). 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/1/11/707/003. **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** April 2012.