



This is a fictional case study based on an original case presented by Dr Ana Ma Cebrián Cuenca, MD

Clinical profile

Patient	Age	Condition	Duration
Female	74 years	T2DM	13 years

Other medical history

- Limited mobility due to COVID-19 pandemic
- Depression
- Arterial hypertension (treated blood pressure 121/82 mm Hg)
- Dyslipidaemia for 5 years
- Lower back pain
- BMI 25.2 kg/m²
- Waist measurement 93 cm
- Fasting glucose 10.6 mmol/L
- HbA_{1c} 70.2 mmol/mol (8.6%)

Current diabetes management

- Metformin 1g twice daily and sitagliptin 100 mg once daily
- Mediterranean diet
- Physical exercise 5 times per week

Toujeo* is indicated for the treatment of diabetes mellitus in adults, adolescents and children from the age of 6 years.! Prescribing information is available at the end of this document.





Clinical challenge

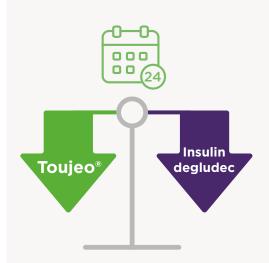
- T2DM not controlled sufficiently with current combination of medication, diet, and exercise Patient is 74 years old and has no complications or comorbidities beyond those listed above
- NICE recommends that adults with T2DM and an HbA $_{1c}$ not adequately controlled aim for an HbA $_{1c}$ of 55.2 mmol/mol (7.2%).²
- The HbA_{1c} target should be discussed and agreed with the patient
- Due to the COVID-19 pandemic, the patient has stopped going out much, and medication adjustment was delayed

Why choose Toujeo®?

BRIGHT was a 24-week, randomised, multicentre, open-label, non-inferiority study following 929 insulin-naïve patients with T2DM inadequately controlled by oral antihyperglycaemic drugs with or without GLP-1 receptor agonists³

- Participants were randomised (1:1) to evening dosing with Toujeo® (n = 466) or insulin degludec 100 units/mL (n = 463), titrated to fasting self-monitored plasma glucose of 4.4-5.6 mmol/L³
- The primary endpoint was change in HbA_{1c} from baseline to Week 24. Secondary endpoints included incidence and event rates of confirmed hypoglycaemia during the 24-week ontreatment period, the active titration period (Weeks 0-12), and the maintenance period (Weeks 13-24)³

Comparable and effective HbA_{1c} reduction at 24 weeks^{3,4}



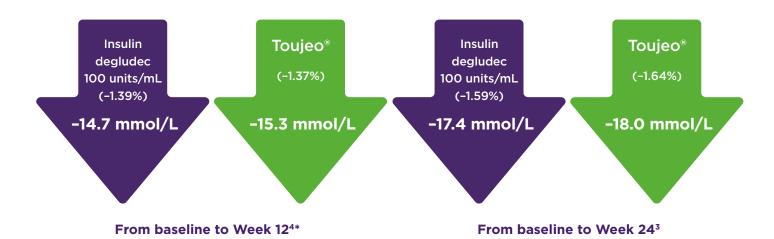
At Week 24, HbA_{1c} improved similarly from baseline values of 71.8 mmol/mol (8.7%) in the Toujeo® group and 70.2 mmol/mol (8.6%) in the insulin degludec group to 53.3 mmol/mol (7.0%), least squares mean difference -0.6 mmol/mol (95% CI -1.7 to 0.6), demonstrating noninferiority of Toujeo® vs insulin degludec (P < 0.0001)³

The incidence of confirmed hypoglycemia (≤70 mg/dL) at any time of day (24 h) during the 24-week on-treatment period was comparable with Toujeo and insulin degludec, being 66.5% and 69.0% (OR 0.88 [95% CI 0.66-1.17])

During the 12 week titration period, the incidence of confirmed hypoglycemia was 47.4% with Toujeo vs 54.3% with insulin degludec (OR 0.74 [95% CI 0.57-0.97])



Least squares mean change in HbA,, mmol/mol (%)



Treatment solution

- Telephone consultation with the patient to discuss options
- Second-generation basal insulin Toujeo® (insulin glargine 300 units/mL) was added to her regimen, and she continued metformin with sitagliptin
- To support the transition, nursing support was arranged to train the patient to self-administer and self-adjust Toujeo[®] to achieve the target HbA_{1c} level

Outcomes after 3 months of Toujeo®

- **Fasting blood glucose** was 7.4 mmol/L, and HbA_{1c} was 60.7 mmol/mol (7.7%)
- The patient reported being satisfied with the treatment
- The patient successfully self-adjusted Toujeo® to 32 units per dose

When starting Toujeo® in patients with T2DM, the recommended daily starting dose is 0.2 units/kg followed by individual dose adjustments to reach target HbA_{1c}¹



Week 12 ITT population: Toujeo*, n = 462; insulin degludec 100 units/mL, n = 462.4

Week 24 ITT population: Toujeo*, n = 462; insulin degludec 100 units/mL, n = 462.3

Study population were insulin-naive. Overall, 202 (43.7%) and 221 (47.8%) of participants in the Toujeo* and degludec 100 units/mL treatment groups, respectively, reported adverse events during the 24-week study period.³ *Least squares mean difference: -0.02% (95% Cl -0.08 to 0.12)

BMI, body mass index; **CI,** confidence interval; **COVID-19,** coronavirus disease 2019; **GLP-1,** glucagon-like peptide 1; **HbA**_{1,2}, glycated haemoglobin; **ITT,** intention-to-treat; **NICE,** National Institute for Health and Care Excellence; **OR,** odds ratio; **T2DM,** type 2 diabetes mellitus





Prescribing Information: Toujeo® (insulin glargine 300 units/ml) (GB)

Please refer to Summary of Product Characteristics (SmPC) before prescribing.

Presentation: Toujeo pre-filled pens each ml contains 300 units of insulin glargine. SoloStar pen contains 1.5ml (450 units) of solution for injection. DoubleStar pen contains 3ml (900 units) of solution for injection.

Indication: Treatment of diabetes mellitus in adults, adolescents and children from the age of 6 years.

Dosage and Administration: Toujeo is administered subcutaneously, by injection into the abdominal wall, the deltoid or the thigh, once daily, at any time of the day, preferably at the same time every day. The dose regimen (dose and timing) should be adjusted according to individual response. Injection sites must be rotated within a given injection area from one injection to the next in order to reduce the risk of lipodystrophy and cutaneous amyloidosis. Do not administer intravenously. In type 1 diabetes mellitus, Toujeo must be combined with short-/rapid-acting insulin to cover mealtime insulin requirements. In patients with type 2 diabetes mellitus, recommended daily starting dose is 0.2 units/kg followed by individual dose adjustments. Toujeo can also be given together with other anti-hyperglycaemic medicinal products. Switch between insulin glargine 100 units/ml and Toujeo: Insulin glargine 100 units/ml and Toujeo are not bioequivalent and are not directly interchangeable. When switching from insulin glargine 100 units/ml to Toujeo, this can be done on a unit-to-unit basis, but a higher Toujeo dose (approximately 10-18%) may be needed to achieve target ranges for plasma glucose levels. When switching from Toujeo to insulin glargine 100 units/ml, the dose should be reduced (approximately by 20%). Switching from other basal insulins to Toujeo: A change of dose and/or timing of the basal insulin and concomitant anti-hyperglycaemic treatment may be required. Dose adjustments may also be required if the patient's weight or lifestyle changes, the timing of insulin dose is changed or other circumstances arise that increase susceptibility to hypoor hyperglycaemia. Toujeo must not be mixed or diluted with any other insulin or other medicinal products. Close metabolic monitoring is recommended during a switch and in the initial weeks thereafter. SoloStar 1-80 units per single injection in steps of 1 unit and DoubleStar 2-160 units in steps of 2 units. When changing from Toujeo SoloStar to Toujeo DoubleStar, if the patient's previous dose was an odd number then the dose must be increased or decreased by 1 unit. Toujeo DoubleStar prefilled pen is recommended for patients requiring at least 20 units per day.

Special Populations: Elderly, renal and hepatic impairment: Insulin requirements may be diminished in the elderly or patients with renal or hepatic impairment. Paediatric population: When switching basal insulin to Toujeo, dose reduction of basal and bolus insulin needs to be considered on an individual basis, in order to minimise the risk of hypoglycaemia.

Contraindications: Hypersensitivity to insulin glargine or any excipients.

Precautions and Warnings: <u>Traceability</u>: In order to improve the traceability of biological medicinal products, the name and the batch number of the administered product should be clearly recorded. Toujeo is not the insulin of choice for treatment of diabetic ketoacidosis. Patients must be instructed to perform continuous rotation of the injection site to reduce the risk of developing lipodystrophy and cutaneous amyloidosis. There is a potential risk of delayed insulin absorption and worsened glycaemic control following insulin injections at sites with these reactions. A sudden change in the injection site to an unaffected area has been reported to result in hypoglycaemia. Blood glucose

monitoring is recommended after the change in the injection site. and dose adjustment of antidiabetic medications may be considered. Hypoglycaemia: In case of insufficient glucose control or a tendency to hyper/hypoglycaemic episodes, the patient's adherence to the prescribed treatment regimen, injection sites and proper injection technique and all other relevant factors must be reviewed before dose adjustment is considered. Particular caution should be exercised, and intensified blood glucose monitoring is advisable for patients in whom hypoglycaemic episodes might be of clinical relevance and in those where dose adjustments may be required. Warning signs of hypoglycaemia may be changed, less pronounced or absent in certain risk groups, potentially resulting in severe hypoglycaemia and loss of consciousness. Risk groups include patients in whom glycaemic control is markedly improved, hypoglycaemia develops gradually, an autonomic neuropathy is present, or who are elderly. The prolonged effect of subcutaneous insulin glargine may delay recovery from hypoglycaemia. Intercurrent illness: Requires intensified metabolic monitoring and often it is necessary to adjust the insulin dose. Insulin antibodies: administration may cause insulin antibodies to form. Use with pioglitazone: Cases of cardiac failure have been reported when pioglitazone was used in combination with insulin, especially in patients with risk factors for development of cardiac heart failure. If the combination is used, patients should be observed for signs and symptoms of heart failure, weight gain and oedema. Pioglitazone should be discontinued if any deterioration in cardiac symptoms occurs. Medication errors: Insulin labels must always be checked before each injection to avoid errors between Toujeo and other insulins. Patients must be instructed to never use a syringe to remove Toujeo from the SoloStar or DoubleStar prefilled pen, A new sterile needle must be attached before each injection. Needles must not be re-used. Pregnancy and breastfeeding: There is no data from exposed pregnancies in controlled clinical trials. However, there is a large amount of data on use of insulin glargine 100 units/ml in pregnant women indicating no specific adverse effects on pregnancy and no specific malformative nor feto/neonatal toxicity. The use of Toujeo may be considered during pregnancy, if clinically needed. Careful monitoring of glucose control is essential. It is unknown if insulin glargine is excreted in breast milk. Interactions: Substances that affect glucose metabolism may require adjustment of insulin

Adverse Reactions: <u>Very common</u>: Hypoglycaemia. Prolonged or severe hypoglycaemia may be life-threatening. <u>Common</u>: Lipohypertrophy, injection site reactions, including redness, pain, itching, hives, swelling, or inflammation. <u>Frequency not known</u>: Cutaneous amyloidosis. *Prescribers should consult the SmPC in relation to other adverse reactions*.

Legal Category: POM

List Price and Marketing Authorisation Number(s): SoloStar 3 x 1.5ml pens (PLGB 04425/0817): £32.14

DoubleStar 3 x 3ml pens (PLGB 04425/0818): £64.27

Marketing Authorisation Holder: Sanofi, 410 Thames Valley Park Drive, Reading, Berkshire, RG6 1PT, UK

Further information is available from: Medical Information, Sanofi, 410 Thames Valley Park Drive, Reading, Berkshire, RG6

1PT, UK. <u>uk-medicalinformation@sanofi.com</u>.

Date of preparation: October 2024.

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard or search for MHRA Yellow Card in the Google Play or Apple App Store.

Adverse events should also be reported to Sanofi Tel: 0800 090 2314. Alternatively, send via email to UK-drugsafety@sanofi.com

Prescribing Information: Toujeo® (insulin glargine 300 units/ml) (NI)

Please refer to Summary of Product Characteristics (SmPC) before prescribing.

Presentation: Toujeo SoloStar pre-filled pens each ml contains 300 units of insulin glargine. SoloStar pen contains 1.5ml (450 units) of solution for injection. DoubleStar pen contains 3ml (900 units) of solution for injection.

Indication: Treatment of diabetes mellitus in adults, adolescents and children from the age of 6 years.

Dosage and Administration: Toujeo is administered subcutaneously, by injection into the abdominal wall, the deltoid or the thigh, once daily, at any time of the day, preferably at the same time every day. The dose regimen (dose and timing) should be adjusted according to individual response. Injection sites must be rotated within a given injection area from one injection to the next in order to reduce the risk of lipodystrophy and cutaneous amyloidosis. Do not administer intravenously. In type 1 diabetes mellitus, Toujeo must be combined with short-/rapid-acting insulin to cover mealtime insulin requirements. In patients with type 2 diabetes mellitus, recommended daily starting dose is 0.2 units/kg followed by individual dose adjustments. Toujeo can also be given together with other anti-hyperglycaemic medicinal products. Switch between insulin glargine 100 units/ml and Toujeo: Insulin glargine 100 units/ml and Toujeo are not bioequivalent and are not directly interchangeable. When switching from insulin glargine 100 units/ml to Toujeo, this can be done on a unit-to-unit basis, but a higher Toujeo dose (approximately 10-18%) may be needed to achieve target ranges for plasma glucose levels. When switching from Toujeo to insulin glargine 100 units/ml, the dose should be reduced (approximately by 20%). Switching from other basal insulins to Toujeo: A change of dose and/or timing of the basal insulin and concomitant anti-hyperglycaemic treatment may be required. Dose adjustments may also be required if the patient's weight or lifestyle changes, the timing of insulin dose is changed or other circumstances arise that increase susceptibility to hypoor hyperglycaemia. Toujeo must not be mixed or diluted with any other insulin or other medicinal products. Close metabolic monitoring is recommended during a switch and in the initial weeks thereafter. SoloStar 1-80 units per single injection in steps of 1 unit and DoubleStar 2-160 units in steps of 2 units. When changing from Toujeo SoloStar to Toujeo DoubleStar, if the patient's previous dose was an odd number then the dose must be increased or decreased by 1 unit. Toujeo DoubleStar prefilled pen is recommended for patients requiring at least 20 units per day.

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Contraindications: Hypersensitivity to insulin glargine or any excipients.

Precautions and Warnings: <u>Traceability</u>: In order to improve the traceability of biological medicinal products, the name and the batch number of the administered product should be clearly recorded. Toujeo is not the insulin of choice for treatment of diabetic ketoacidosis. Patients must be instructed to perform continuous rotation of the injection site to reduce the risk of developing lipodystrophy and cutaneous amyloidosis. There is a potential risk of delayed insulin absorption and worsened glycaemic control following insulin injections at sites with these reactions. A sudden change in the injection site to an unaffected area has been reported to result in hypoglycaemia. Blood glucose monitoring is recommended after the change in the injection site,

and dose adjustment of antidiabetic medications may be considered. Hypoglycaemia: In case of insufficient glucose control or a tendency to hyper/hypoglycaemic episodes, the patient's adherence to the prescribed treatment regimen, injection sites and proper injection technique and all other relevant factors must be reviewed before dose adjustment is considered. Particular caution should be exercised, and intensified blood glucose monitoring is advisable for patients in whom hypoglycaemic episodes might be of clinical relevance and in those where dose adjustments may be required. Warning signs of hypoglycaemia may be changed, less pronounced or absent in certain risk groups, potentially resulting in severe hypoglycaemia and loss of consciousness. Risk groups include patients in whom glycaemic control is markedly improved, hypoglycaemia develops gradually, an autonomic neuropathy is present, or who are elderly. The prolonged effect of subcutaneous insulin glargine may delay recovery from hypoglycaemia. Intercurrent illness: Requires intensified metabolic monitoring and often it is necessary to adjust the insulin dose. Insulin antibodies: administration may cause insulin antibodies to form. Use with pioglitazone: Cases of cardiac failure have been reported when pioglitazone was used in combination with insulin, especially in patients with risk factors for development of cardiac heart failure. If the combination is used, patients should be observed for signs and symptoms of heart failure, weight gain and oedema. Pioglitazone should be discontinued if any deterioration in cardiac symptoms occurs. Medication errors: Insulin labels must always be checked before each injection to avoid errors between Toujeo and other insulins. Patients must be instructed to never use a syringe to remove Toujeo from the SoloStar or DoubleStar prefilled pen, A new sterile needle must be attached before each injection. Needles must not be re-used. Pregnancy and breastfeeding: There is no data from exposed pregnancies in controlled clinical trials. However, there is a large amount of data on use of insulin glargine 100 units/ml in pregnant women indicating no specific adverse effects on pregnancy and no specific malformative nor feto/neonatal toxicity. The use of Toujeo may be considered during pregnancy, if clinically needed. Careful monitoring of glucose control is essential. It is unknown if insulin glargine is excreted in breast milk. *Interactions:* Substances that affect glucose metabolism may require adjustment of insulin glargine.

Adverse Reactions: <u>Very common:</u> Hypoglycaemia. Prolonged or severe hypoglycaemia may be life-threatening. <u>Common:</u> Lipohypertrophy, injection site reactions, including redness, pain, itching, hives, swelling, or inflammation. <u>Not known:</u> Cutaneous amyloidosis. <u>Prescribers should consult the SmPC in relation to other adverse reactions.</u>

NI List **Price:** SoloStar 5 x 1.5ml pens: £53.57; DoubleStar 3 x 3ml pens: £64.27.

Legal Category: POM

Marketing Authorisation Number: SoloStar 5 Pen pack: EU/1/00/133/035; DoubleStar 3 Pen pack: EU/1/00/133/038.

Marketing Authorisation Holder: Sanofi Aventis Deutschland GmbH, D-65926 Frankfurt am Main, Germany.

Further information is available from: Medical Information, Sanofi, 410 Thames Valley Park Drive, Reading, Berkshire, RG6 1PT, UK. uk-medicalinformation@sanofi.com.

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Contraindications: Hypersensitivity to insulin glargine or any excipients.

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Legal Category: POM.

Marketing Authorisation Number: SoloStar 5 pen pack: EU/1/00/133/035; DoubleStar 5 pen pack: EU/1/00/133/038.

Marketing Authorisation Holder: Sanofi Aventis Deutschland

GmbH, D-65926 Frankfurt am Main, Germany.

Further information is available from: Medical Information, Sanofi, 18 Riverwalk, Citywest Business Campus, Dublin 24 or contact lemedinfo@sanofi.com.

Date of preparation: July 2022.