Formulary Factsheet: Metformin

Kernow Clinical Commissioning Group

The purpose of this factsheet is to emphasise the importance of appropriate prescribing of metformin in type 2 diabetes.
In the UKPDS, significant improvements in macrovascular outcomes leading to fewer deaths were reported for overweight patients receiving metformin therapy for a median period of 10 years.
The reduction in morbidity and mortality was much greater than that reported for patients treated with sulphonylureas and insulin despite there being no overall difference in glycaemic control.
This emphasises the need to optimise therapy with metformin, so that these benefits may be more widely realised.

The Bottom Line

Standard-release metformin is the first-line initial treatment of choice (unless contraindicated).
If blood glucose control is inadequate with metformin alone, once titrated to maximum appropriate dose, then consideration should be given to ADDING a gliptin, pioglitazone, a sulphonylurea or an SGLT-2.
(NICE advises on alternative first line and subsequent combinations in patients for whom metformin is contraindicated.)

Targets

"Involve adults with type 2 diabetes in decisions about their individual HbA1c target."
Initial treatment:
Diet, exercise and metformin, titrated to appropriate maximum level[1]
Target 48mmol/mol (6.5%)
[1](or appropriate first-line agent if metformin not indicated).
In a patient on a single agent whose levels rise to 58mmol/mol (7.5%) or above, NICE advises reinforce lifestyle advice and support and intensify drug treatment.
https://www.nice.org.uk/guidance/ng28/chapter/1-Recommendations#hba1c-measurement-and-targets

Initiating Metformin

- The dose of metformin should be increased **slowly:**
- 500mg once a day with breakfast for a minimum of one week then
- 500mg twice a day, with breakfast and evening meal then
- 500mg three times a day, with breakfast, lunch and evening meal continuing to increase in this way until maximum appropriate dose achieved.
- **Increase dose only once the patient has been side-effect free for at least one week**

Managing Side Effects

- **Slow and steady dose titration over several weeks will minimise the risk of gastrointestinal adverse effects**
- **If GI side-effects present, reduce dose to maximum tolerated dose**
- **The usual daily dose is 2g daily (in divided doses).** (Doses up to 3g daily are licensed)
- **There is only weak evidence to support changing from standard-release metformin to modified-release metformin if gastrointestinal adverse effects prevent an individual from continuing standard-release therapy.** A trial of an MR preparation may be appropriate if a patient is unable to tolerate the standard release preparation, following slow titration.

Date of preparation: April 2012 Current revision July 2018 Due for review: June 2021

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Renal Impairment

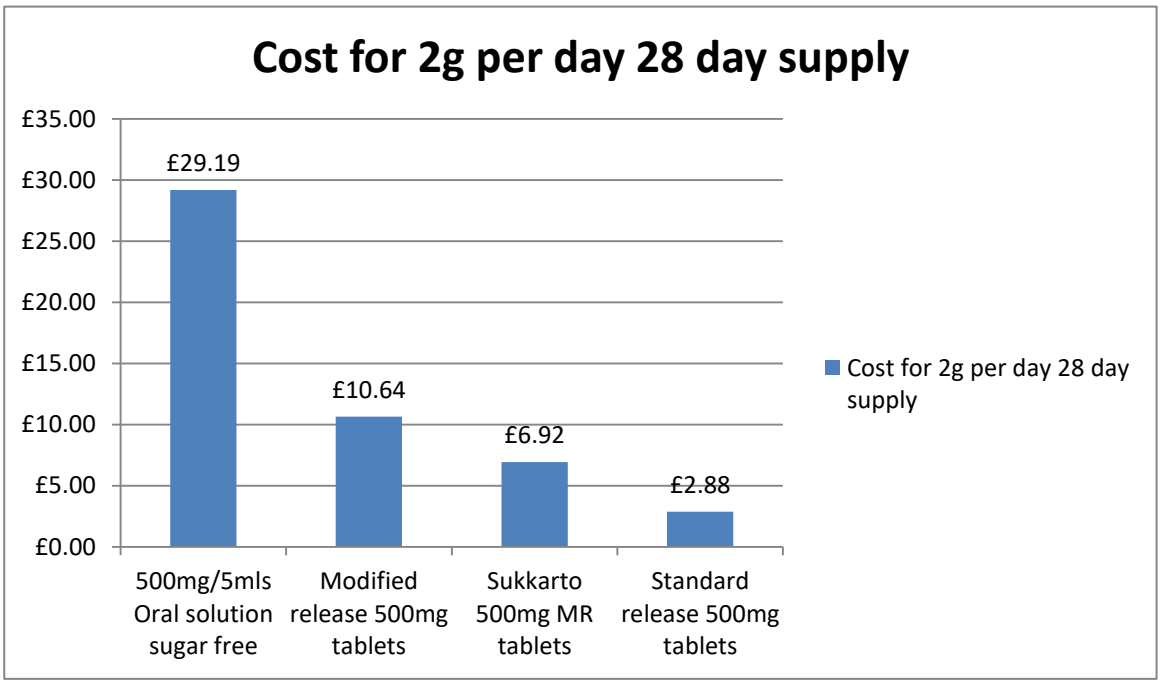
Renal function should be checked **before** starting treatment and metformin not started if eGFR is less than 30 mL/min/1.73 m^2.
It should be checked at least annually thereafter and the dose reviewed if eGFR falls below 45 mL/min/1.73 m^2.

Sick Day Rules and AKI

If taking Metformin, patients should be advised to discontinue temporarily this medication if prolonged periods of vomiting/diarrhoea as this can contribute to the risk of developing lactic acidosis.

When renal function improves, it may be appropriate to reinitiate the metformin and monitor closely.

Metformin Preparation Cost Comparison



(June Drug Tariff 2018)

Patients with swallowing difficulties

If a liquid preparation is necessary Metformin 500mg/5ml oral solution sugar-free is the most cost-effective licensed preparation.
(Please take care to prescribe **oral solution SF** in multiples of 150mls – other presentations will be 'specials', unlicensed and significantly more costly to the NHS.)