MAY 2017

Type 2 diabetes in adults - management

NICE NG28. Type 2 diabetes in adults: management, December 2015 nice.org.uk/guidance/ng28. Since the publication of the 2009 guideline, new evidence and key developments have prompted an update of management blood glucose levels, antiplatelet therapy and erectile dysfunction. Latest news: NG28 has been updated to include new advice on when to consider SGLT-2 inhibitors - now recommended as an option for initial therapy for adults for whom metformin is not tolerated or contraindicated.

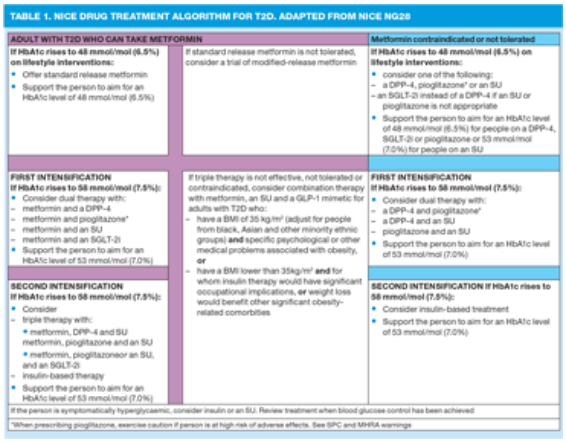

TABLE 1. NICE DRUG TREATMENT ALGORITHM FOR T2D. ADAPTED FROM NICE NG28

ADULT WITH T2D WHO CAN TAKE METFORMIN

If HbA1c rises to 48 mmol/mol (6.5%) on lifestyle interventions:
- Offer standard release metformin
- Support the person to aim for an HbA1c level of 48 mmol/mol (6.5%)

If standard release metformin is not tolerated, consider a trial of modified-release metformin

FIRST INTENSIFICATION
If HbA1c rises to 58 mmol/mol (7.5%):
- Consider dual therapy with:
  - metformin and a DPP-4
  - metformin and pioglitazone*
  - metformin and an SU
  - metformin and an SGLT-2i
- Support the person to aim for an HbA1c level of 53 mmol/mol (7.0%)

SECOND INTENSIFICATION
If HbA1c rises to 58 mmol/mol (7.5%):
- Consider
  - triple therapy with:
    - metformin, DPP-4 and SU
    - metformin, pioglitazone and an SU
    - metformin, pioglitazoneor an SU, and an SGLT-2i
  - insulin-based therapy
- Support the person to aim for an HbA1c level of 53 mmol/mol (7.0%)

If triple therapy is not effective, not tolerated or contraindicated, consider combination therapy with metformin, an SU and a GLP-1 mimetic for adults with T2D who:
- have a BMI of 35 kg/m² (adjust for people from black, Asian and other minority ethnic groups) **and** specific psychological or other medical problems associated with obesity, **or**
- have a BMI lower than 35kg/m² **and** for whom insulin therapy would have significant occupational implications, **or** weight loss would benefit other significant obesity-related comorbities

Metformin contraindicated or not tolerated

If HbA1c rises to 48 mmol/mol (6.5%) on lifestyle interventions:
- consider one of the following:
  - a DPP-4, pioglitazone* or an SU
  - an SGLT-2i instead of a DPP-4 if an SU or pioglitazone is not appropriate
- Support the person to aim for an HbA1c level of 48 mmol/mol (6.5%) for people on a DPP-4, SGLT-2i or pioglitazone or 53 mmol/mol (7.0%) for people on an SU

FIRST INTENSIFICATION
If HbA1c rises to 58 mmol/mol (7.5%):
- Consider dual therapy with:
  - a DPP-4 and pioglitazone*
  - a DPP-4 and an SU
  - pioglitazone and an SU
- Support the person to aim for an HbA1c level of 53 mmol/mol (7.0%)

SECOND INTENSIFICATION If HbA1c rises to 58 mmol/mol (7.5%):
- Consider insulin-based treatment
- Support the person to aim for an HbA1c level of 53 mmol/mol (7.0%)

If the person is symptomatically hyperglycaemic, consider insulin or an SU. Review treatment when blood glucose control has been achieved

*When prescribing pioglitazone, exercise caution if person is at high risk of adverse effects. See SPC and MHRA warnings

New evidence and key developments have prompted an update of management blood glucose levels, antiplatelet therapy and erectile dysfunction.

In particular, reasons included safety concerns surrounding some blood glucose lowering medicines, new evidence on new dipeptidyl peptidase-4 (DPP-4) inhibitors and glucagon-like peptide-1 (GLP-1) receptor agonists, new indications and licensed combinations for licensed class members and the potential impact of drugs coming off patent on health-economic issues.

Treatment and care should take into account individual needs and preferences. Patients should be involved in decisions about blood glucose targets and drug therapy. If the patient is under 16 but understands the proposed treatment, they can give their own consent. When caring for older adults, particular consideration should be given to broader health and social care needs. Older people are more likely to have co-existing conditions and to be on more medications. Their ability to benefit from risk-reduction interventions in the longer term may be reduced.

RECOMMENDATIONS

EDUCATION

Offer structured education to adults with type 2 diabetes (T2D) on diagnosis, and offer reinforcement annually. Programmes should be evidence-based, suit the needs of the individual, be delivered by trained educators, and outcomes should be audited regularly.

Dietary advice should be integrated with personalised diabetes management plans, together with advice on increasing physical activity and losing weight.

BLOOD GLUCOSE MANAGEMENT

Measure HbA1c levels at 3–6-monthly intervals until HbA1c is stable on unchanging therapy

Once HbA1c levels are stable, measure 6-monthly

Involve patients in decisions about their individual HbA1c target. Encourage them to achieve and maintain their target unless adverse effects, including hypoglycaemia (hypos), or efforts to reach target impair their quality of life.

For adults with T2D managed by lifestyle and dietary measures, or by lifestyle and diet with a single drug not associated with hypos, aim for an HbA1c target of 48 mmol/mol.

For adults treated with a drug associated with hypos, aim for an HbA1c level of 53 mmol/mol.

If HbA1c levels are not adequately controlled by a single drug and rise to 58 mmol/mol or higher:

– Reinforce advice about diet, lifestyle and adherence to treatment

– Support the individual to aim for an HBA1c level of 53 mmol/mol, and

– Intensify drug treatment

Consider relaxing HbA1c targets on a case-by-case basis for people who are:

– Older or frail

– Unlikely to achieve longer-term risk-reduction benefits (e.g. reduced life expectancy)

– At high risk of the consequences of hypos (e.g. at risk of falling, have impaired awareness of hypos, drive or operate machinery at work)

– With significant co-morbidities, for whom intensive management would be inappropriate

DO NOT routinely offer self-monitoring of blood glucose levels unless the person is on insulin, there is evidence of hypos, or the person is on oral medication that may increase their risk of hypos while driving, or the person is or is planning to become pregnant.

DRUG TREATMENT

Base the choice of drug treatment on:

– Effectiveness in terms of metabolic response

– Safety and tolerability

– The individual clinical circumstances e.g. comorbidities, risk of polypharmacy

– The individual’s preferences and needs

– The licensed indications or available combinations

– Cost

INITIAL DRUG TREATMENT

Offer standard-release metformin as the initial drug treatment for adults with T2D

If metformin is contraindicated or not tolerated, consider:

– A DPP-4 inhibitor

– Pioglitazone*

– A sulfonylurea, or

NEW:

– An SGLT-2 inhibitor (canaglifozin, dapagliflozin or empagliflozin) as monotherapy

Gradually increase the dose of standard-release metformin to minimise the risk of GI side effects.

If GI effects persist, consider modified release metformin.

Review the dose of metformin if renal function is impaired (below 45 ml/minute/1.73m2), and stop if the eGFR is below 30 ml/ minute/1.73m2.

FIRST INTENSIFICATION OF DRUG TREATMENT

Treatment with 2 non-insulin blood glucose lowering agents in combination (dual therapy)

If initial drug treatment has not controlled HbA1c to below the individual's agreed threshold for intensification, consider dual therapy with:

- Metformin plus DPP-4 inhibitor, or

- Metformin plus pioglitazone*, or

- Metformin plus a sulfonylurea.

Alternative combinations where metformin is contraindicated or not tolerated include:

- A DPP-4 inhibitor and pioglitazone*, or

- A DPP-4 inhibitor and a sulfonylurea, or

- Pioglitazone* and a sulfonylurea

Treatment with combinations of medicines including sodium-glucose cotransporter 2 (SGLT-2) inhibitors may be appropriate for some people with T2D. See NICE technology appraisals for canaglifozin, dapaglifozin and empagliflozin.

SECOND INTENSIFICATION OF DRUG TREATMENT

Treatment with either:

- 3 non-insulin insulin blood glucose lowering agents in combination (triple therapy), or
- Any treatment combination containing insulin

If dual therapy with metformin and another oral drug does not continue to control HbA1c to below the individual's agreed threshold for intensification, consider either:

- Triple therapy with:

– metformin, a DPP-4 inhibitor and a sulfonylurea, or

– metformin, pioglitazone* and a sulfonulurea, or

- Starting insulin-based treatment

If triple therapy with metformin and 2 other oral drugs is not effective, not tolerated or contraindicated, consider combination therapy with metformin, a sulfonylurea and a glucagon-like peptide-1 (GLP-1) mimetic, for adults who:

– have a BMI of 35 kg/m2 or higher (adjust for people of black, Asian and other ethnic groups) and specific psychological or other medical problems associated with obesity, or

– have a BMI lower than 35 kg/m2 and for whom insulin therapy would have significant occupational implications or for whom weight loss would benefit other significant obesity-related comorbidities

Only continue GLP-1 if there is a significant metabolic response – a reduction of at least 11 mmol/mol in HbA1c and weight loss of at least 3% initial body weight in 6 months.

NEW: Treatement with combinations of medicines including SGLT-2 inhibitors may be appropriate for some people with type 2 diabetes.

RESCUE THERAPY

If an adult with T2D is symptomatically hyperglycaemic, consider insulin or a sulfonylurea and review treatment when blood glucose control has been achieved.

INITIATING INSULIN

When starting insulin therapy, use a structured programme that includes:

- Injection technique
- Continuing telephone support
- Self-monitoring
- Dose titration to target levels
- Dietary understanding
- DVLA guidance – Assessing fitness to drive: a guide for medical professionals

Continue to offer metformin (unless contraindicated or not tolerated). Review the need to continue other blood glucose lowering therapies.

Insulin delivery – see the insulin delivery section in the NICE guideline on type 1 diabetes https://www.nice.org.uk/Guidance/ng17

BLOOD PRESSURE MANAGEMENT

Add medications if lifestyle advice does not reduce blood pressure (BP) to below 140/80 mmHg (below 130/80 mmHg if there is kidney, eye or cerebrovascular damage.

Monitor BP every 1-2 months and intensify drug treatment until BP is consistently below 140/80 mmHg (130/80 mmHg if there is kidney, eye or cerebrovascular damage).

First-line antihypertensive drug treatment should be a once-daily, generic angiotensin converting enzyme (ACE) inhibitor, except for people of African or Caribbean origin, or women who may become pregnant

First-line antihypertensive drug treatment for people of African or Caribbean origin should be an ACE inhibitor plus either a diuretic or a generic calcium-channel blocker (CCB).

For people who cannot tolerate an ACE inhibitor, consider substituting an angiotensin receptor blocker (ARB).

DO NOT use ACE inhibitors and ARBs in combination.

Once BP is controlled, monitor every 4-6 months.

ANTIPLATELET THERAPY

DO NOT offer antiplatelet therapy – aspirin or clopidogrel – to adults with T2D who do not have cardiovascular disease.

MANAGING COMPLICATIONS

Gastroparesis

Consider a diagnosis of gastroparesis in adults with T2D with erratic blood glucose control or unexplained gastric bloating or vomiting. There is no strong evidence to support the efficacy of any available antiemetic therapy in vomiting caused by gastroparesis, but some people have had benefit from domperidone (consider cardiac risk and potential drug interactions0, erythromycin or metoclopramide. If vomiting is persistent or severe consider referral to specialist services.

Painful diabetic neuropathy

See Neuropathic pain in adults https://www.nice.org.uk/guidance/cg173

Autonomic neuropathy

Consider the possibility of sympathetic nervous system damage in adults who:

- Lose the warning signs of hypos
- Have unexplained diarrhoea, especially at night
- Have unexplained bladder-emptying problems
- Be aware of the increased risk of orthostatic hypotension in patients receiving antihypertensive drug treatments or tricyclic antidepressants.

Diabetic foot problems

See Diabetic foot problems https://www.nice.org.uk/Guidance/NG19

Diabetic kidney disease

See Chronic kidney disease in adults https://www.nice.org.uk/Guidance/CG182

Erectile dysfunction

Offer men with T2D the opportunity to discuss erectile dysfunction (ED) as part of their annual review. Assess, educate and support men with ED, addressing contributory factors e.g. cardiovascular disease. Consider a phosphodiesterase-5 (PD5) inhibitor. Refer to a specialist service if treatment (including with PD5 inhibitors) is unsuccessful.

Eye disease

Refer adults with T2D to local eye screening service on diagnosis, and arranged repeat screening annually. Arrange emergency review by an ophthalmologist for sudden loss of vision, rubeosis iridis, pre-retinal or vitreous haemorrhage or retinal detachment.

**When prescribing pioglitazone exercise caution if the person is at high risk of known adverse effects, including heart failure, bladder cancer and bone fracture. Refer to MHRA guidance*

PRACTICE NURSE FEATURED ARTICLES

The new NICE guidance for type 2 diabetes – was it worth the wait? Beverley Bostock-Cox

The cardiovascular year: 2015 reviewed Beverley Bostock-Cox

Diabetes Masterclass: optimising therapies for type 2 diabetes Beverley Bostock-Cox

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