NICE National Institute for Health and Care Excellence

NICE Pathways

Primary hyperparathyroidism overview

NICE Pathways bring together everything NICE says on a topic in an interactive flowchart. NICE Pathways are interactive and designed to be used online.

They are updated regularly as new NICE guidance is published. To view the latest version of this NICE Pathway see:

http://pathways.nice.org.uk/pathways/primary-hyperparathyroidism
NICE Pathway last updated: 22 May 2019

This document contains a single flowchart and uses numbering to link the boxes to the associated recommendations.

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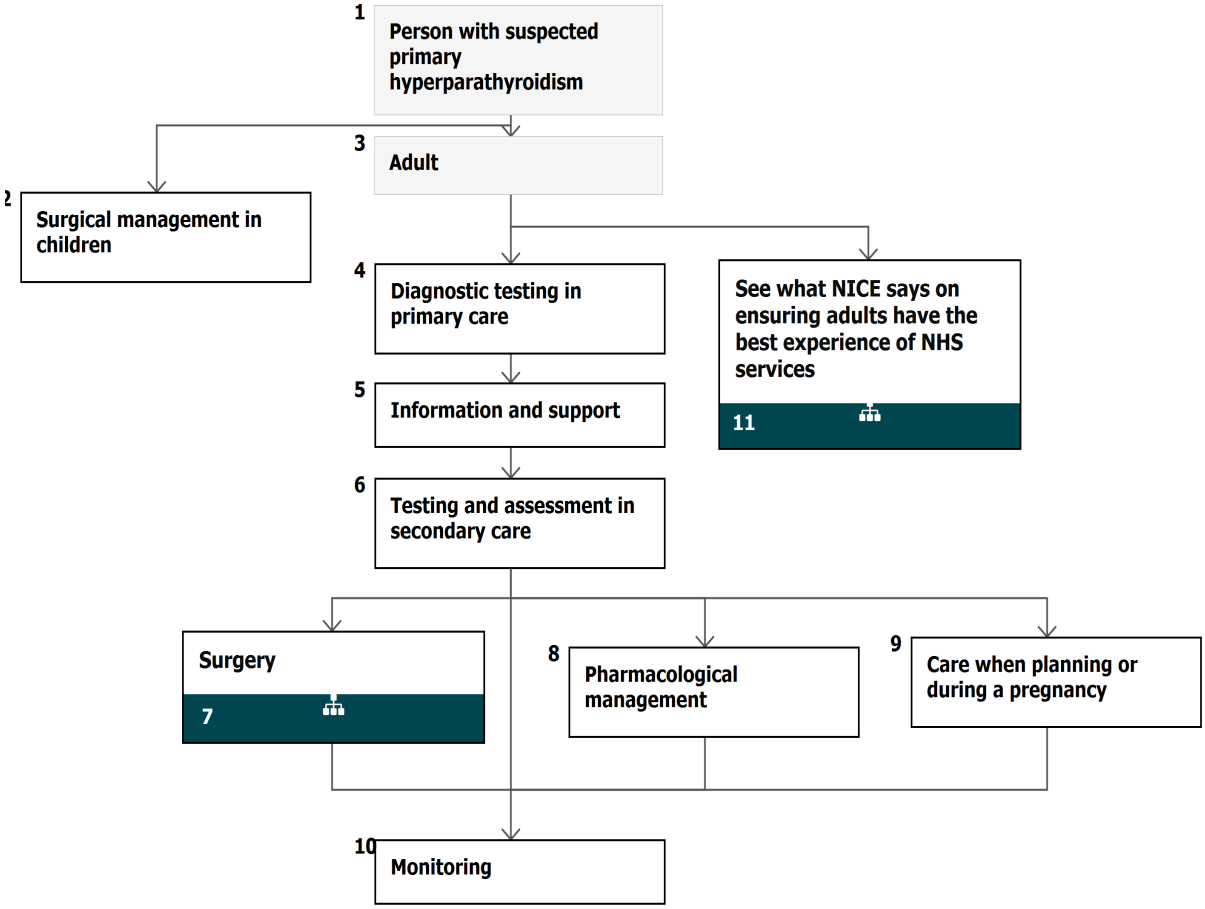

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1 Person with suspected primary hyperparathyroidism

No additional information

2 Surgical management of primary hyperparathyroidism in children

Interventional procedures

NICE has published guidance on minimally invasive video-assisted parathyroidectomy with **normal arrangements** for clinical governance, consent and audit.

NICE has published guidance on thoracoscopic excision of mediastinal parathyroid tumours with **special arrangements** for clinical governance, consent, audit and research.

3 Adult

No additional information

4 Diagnostic testing in primary care

Albumin-adjusted serum calcium measurement

Measure albumin-adjusted serum calcium for people with any of the following features, which might indicate primary hyperparathyroidism:

- symptoms of hypercalcaemia, such as thirst, frequent or excessive urination, or constipation
- osteoporosis or a previous fragility fracture (for recommendations on assessing the risk of fragility fracture in people with osteoporosis, see what NICE says on osteoporosis)
- a renal stone (for recommendations on assessing and managing renal stones, see what NICE says on renal and ureteric stones)
- an incidental finding of elevated albumin-adjusted serum calcium (2.6 mmol/litre or above).

Consider measuring albumin-adjusted serum calcium for people with chronic non-differentiated symptoms [See page 12].

Do not measure ionised calcium when testing for primary hyperparathyroidism.

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Repeat the albumin-adjusted serum calcium measurement at least once if the first measurement is either:

- 2.6 mmol/litre or above **or**
- 2.5 mmol/litre or above and features of primary hyperparathyroidism are present.

Base the decision to carry out further repeat measurements on the level of albumin-adjusted serum calcium and the person's symptoms.

Parathyroid hormone measurement

Measure PTH for people whose albumin-adjusted serum calcium level is either:

- 2.6 mmol/litre or above on at least 2 separate occasions **or**
- 2.5 mmol/litre or above on at least 2 separate occasions and primary hyperparathyroidism is suspected.

When measuring PTH, use a random sample and do a concurrent measurement of the albumin-adjusted serum calcium level.

Do not routinely repeat PTH measurement in primary care.

Seek advice from a specialist with expertise in primary hyperparathyroidism if the person's PTH measurement is either:

- above the midpoint of the reference range and primary hyperparathyroidism is suspected **or**
- below the midpoint of the reference range with a concurrent albumin-adjusted serum calcium level of 2.6 mmol/litre or above.

Do not offer further investigations for primary hyperparathyroidism if:

- the person's PTH is within the reference range but below the midpoint of the reference range **and**
- their concurrent albumin-adjusted serum calcium level is below 2.6 mmol/litre.

Look for alternative diagnoses, including malignancy, if the person's PTH is below the lower limit of the reference range.

Rationale and impact

See the NICE guideline to find out why we made these recommendations and how they might affect practice.

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5 Information and support

Follow NICE's recommendations on enabling people to actively participate in their care in patient experience in adult NHS services.

Give people with primary hyperparathyroidism information about the condition, including:

- what primary hyperparathyroidism is
- what the parathyroid glands do
- causes of primary hyperparathyroidism
- symptoms
- diagnosis, including diagnosis if calcium or PTH levels are normal
- prognosis
- possible effects on daily life
- possible long-term effects.

Give people information about treatments for primary hyperparathyroidism that includes:

- the surgical and non-surgical treatments that are available
- how well the treatments are likely to work
- the advantages and disadvantages of each treatment, including possible complications and side effects
- why these particular treatments are being offered
- why other treatments are not advised.

Give advice on how to reduce the symptoms of primary hyperparathyroidism and prepare for surgery or other treatment, including:

- exercise
- diet
- hydration
- pain relief
- what to expect after treatment, recovery time and return to daily activities, including return to work.

Discuss ongoing care and monitoring for primary hyperparathyroidism, explaining the type and frequency of monitoring that will be offered and the purpose of each. See the recommendations on monitoring [See page 9].

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See the NICE guideline to find out why we made these recommendations and how they might affect practice.

NICE has written information for the public on primary hyperparathyroidism.

6 Testing and assessment in secondary care

Vitamin D measurement

For people with a probable diagnosis of primary hyperparathyroidism, measure vitamin D and offer vitamin D supplements if needed.

Excluding familial hypocalciuric hypercalcaemia

To differentiate primary hyperparathyroidism from familial hypocalciuric hypercalcaemia, measure urine calcium excretion using any one of the following tests:

- 24-hour urinary calcium excretion
- random renal calcium:creatinine excretion ratio
- random calcium:creatinine clearance ratio.

Assessment after diagnosis

For people with a confirmed diagnosis of primary hyperparathyroidism:

- assess symptoms and comorbidities
- measure eGFR or serum creatinine
- do a DXA scan of the lumbar spine, distal radius and hip
- do an ultrasound scan of the renal tract.

Rationale and impact

See the NICE guideline to find out why we made these recommendations and how they might affect practice.

7 Surgery

See Primary hyperparathyroidism / Surgical management of primary hyperparathyroidism

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8 Pharmacological management when surgery is unsuccessful, unsuitable or has been declined

See what NICE says on medicines optimisation.

Calcimimetics

Consider cinacalcet[1] for people with primary hyperparathyroidism if surgery has been unsuccessful, is unsuitable or has been declined, and if their albumin-adjusted serum calcium level is either:

- 2.85 mmol/litre or above with symptoms of hypercalcaemia **or**
- 3.0 mmol/litre or above with or without symptoms of hypercalcaemia.

For people whose initial albumin-adjusted serum calcium level is 2.85 mmol/litre or above with symptoms of hypercalcaemia, base decisions on whether to continue treatment with cinacalcet on how well it reduces symptoms.

For people whose initial albumin-adjusted serum calcium level is 3.0 mmol/litre or above, base decisions on whether to continue treatment with cinacalcet on how well it reduces either symptoms or albumin-adjusted serum calcium level.

See the recommendation on cinacalcet in care during pregnancy [See page 9].

Bisphosphonates for reducing fracture risk

Consider a bisphosphonate to reduce fracture risk for people with primary hyperparathyroidism and increased fracture risk.

Do not offer bisphosphonates for chronic hypercalcaemia of primary hyperparathyroidism.

See the recommendation on bisphosphonates in care during pregnancy [See page 9].

Rationale and impact

See the NICE guideline to find out why we made these recommendations and how they might affect practice.

[1] At the time of publication (May 2019), cinacalcet did not have a UK marketing authorisation for use after unsuccessful surgery for primary hyperparathyroidism. The prescriber should follow relevant professional guidance,

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taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Prescribing guidance: prescribing unlicensed medicines for further information.

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9 Care when planning or during a pregnancy

Care before pregnancy

Offer parathyroid surgery to women who have primary hyperparathyroidism and are considering pregnancy.

Care during pregnancy

Discuss the management of primary hyperparathyroidism for pregnant women with an MDT in a specialist centre, and refer the woman for specialist care if needed. The MDT should include:

- an obstetrician
- a physician with expertise in primary hyperparathyroidism
- a surgeon
- a midwife
- an anaesthetist.

Do not offer cinacalcet to pregnant women with primary hyperparathyroidism.

Do not offer a bisphosphonate to pregnant women with primary hyperparathyroidism.

Be aware that women with primary hyperparathyroidism are at increased risk of hypertensive disease in pregnancy. For recommendations on diagnosing and managing hypertension in pregnant women see what NICE says on hypertension in pregnancy.

Consult a specialist centre MDT for advice on monitoring for pregnant women with primary hyperparathyroidism.

Rationale and impact

See the NICE guideline to find out why we made these recommendations and how they might affect practice.

10 Monitoring

Offer monitoring to all people diagnosed with primary hyperparathyroidism, as set out in the table below.

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People who have had successful parathyroid surgery	People who have not had parathyroid surgery, or whose surgery has not been successful
Measure albumin-adjusted serum calcium once a year	Measure albumin-adjusted serum calcium and eGFR or serum creatinine once a year, unless the person is taking cinacalcet[1]. If the person is taking cinacalcet, offer monitoring as set out in the summary of product characteristics. If the results of monitoring raise concerns, follow the recommendation on repeating the albumin-adjusted serum calcium measurement in diagnostic testing in primary care [See page 3].
If the person has osteoporosis, seek specialist opinion according to local pathways on monitoring	Consider a DXA scan at diagnosis and every 2 to 3 years. If the results of monitoring raise concerns, follow the recommendation on referral to a surgeon in when to refer.
If the person has renal stones, seek specialist opinion according to local pathways on monitoring	Offer ultrasound of the renal tract at diagnosis, when presenting and if a renal stone is suspected (for recommendations on assessing and managing renal stones, see what NICE says on renal and ureteric stones). If the results of monitoring raise concerns, follow the recommendation on referral to a surgeon in when to refer.
For people who have had parathyroid surgery for multigland disease, or have disease that recurs after successful surgery, seek specialist endocrine opinion on monitoring.	
For women who are pregnant see care when planning or during a pregnancy [See page 9].	

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For all people with primary hyperparathyroidism, assess cardiovascular risk and fracture risk in line with NICE's recommendations on cardiovascular disease prevention and osteoporosis.
[1] At the time of publication (May 2019), cinacalcet did not have a UK marketing authorisation for use after unsuccessful surgery for primary hyperparathyroidism. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Prescribing guidance: prescribing unlicensed medicines for further information

Rationale and impact

See the NICE guideline to find out why we made this recommendation and how it might affect practice.

11 See what NICE says on ensuring adults have the best experience of NHS services

See Patient experience in adult NHS services

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Chronic non-differentiated symptoms

Long-term symptoms that could have a number of different causes. Some of these symptoms are experienced by people with primary hyperparathyroidism, but they can also be symptoms of other conditions. Examples include fatigue, mild confusion, bone, muscle or joint pain, anxiety, depression, irritability, low mood, apathy, insomnia, frequent urination, increased thirst and digestive problems.

Glossary

PTH

parathyroid hormone

eGFR

estimated glomerular filtration rate

DXA

dual-energy X-ray absorptiometry

MDT

multidisciplinary team

Advice from a specialist

(this may be a referral or a telephone call to a specialist)

Hypercalcaemia

(a high level of calcium in the blood, defined as an albumin-adjusted serum calcium level of 2.6 mmol/litre or above; although hypercalcaemia often causes few or no symptoms, some people feel unusually thirsty, need to urinate frequently or become constipated)

Sources

Hyperparathyroidism (primary): diagnosis, assessment and initial management (2019) NICE guideline NG132

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Your responsibility

Guidelines

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Technology appraisals

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, health professionals are expected to take these recommendations fully into account, alongside the individual needs, preferences and values of their patients. The application of the recommendations in this interactive flowchart is at the discretion of health professionals and their individual patients and do not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

Commissioners and/or providers have a responsibility to provide the funding required to enable the recommendations to be applied when individual health professionals and their patients wish to use it, in accordance with the NHS Constitution. They should do so in light of their duties to

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have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Medical technologies guidance, diagnostics guidance and interventional procedures guidance

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take these recommendations fully into account. However, the interactive flowchart does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Commissioners and/or providers have a responsibility to implement the recommendations, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this interactive flowchart should be interpreted in a way that would be inconsistent with compliance with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

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