Clinical Commissioning Policy: Pegvisomant for acromegaly as a third-line treatment (adults)

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Clinical Commissioning Policy: Pegvisomant for acromegaly as a third-line treatment (adults)

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Prepared by NHS England Specialised Services Clinical Reference Group for Specialised Endocrinology

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Policy Statement

NHS England will routinely commission pegvisomant for acromegaly as a third line treatment (adults) in accordance with the criteria outlined in this document. In creating this policy NHS England has reviewed this clinical condition and the options for its treatment. It has considered the place of this treatment in current clinical practice, whether scientific research has shown the treatment to be of benefit to patients, (including how any benefit is balanced against possible risks) and whether its use represents the best use of NHS resources. This policy document outlines the arrangements for funding of this treatment for the population in England.

Equality Statement

Promoting equality and addressing health inequalities are at the heart of NHS England's values. Throughout the development of the policies and processes cited in this document, we have:

- Given due regard to the need to eliminate discrimination, harassment and victimisation, to advance equality of opportunity, and to foster good relations between people who share a relevant protected characteristic (as cited under the Equality Act 2010) and those who do not share it; and
- Given regard to the need to reduce inequalities between patients in access to, and outcomes from healthcare services and to ensure services are provided in an integrated way where this might reduce health inequalities

Plain Language Summary

About acromegaly

The 'pituitary gland' sits at the base of the brain. It is important in controlling the growth and development of the human body. In acromegaly, too much growth hormone is produced from this gland. This leads to too much growth of parts of the body over time – causing deformities of the body and other physical symptoms. It may also cause complications including:

- heart disease
- diabetes
- high blood pressure (hypertension).

About current treatments

Most patients will have surgery to manage the illness. If they need further treatment, they may have radiation therapy or take medicines called ‘growth hormone inhibitors’.

About the new treatment

Pegvisomant is a medicine which blocks the action of growth hormones in the body. As a result, it can help to control acromegaly. It is licensed in the UK to be used when surgery, radiation therapy and treatment with growth hormone inhibitors (particularly ‘somatostatin analogues’) does not work.

What we have decided

NHS England has carefully reviewed the evidence to treat acromegaly in adults with pegvisomant. We have concluded that there is enough evidence to consider making the treatment available.

1 Introduction

This document describes the evidence that has been considered by NHS England in formulating a policy to routinely commission pegvisomant for adult patients with acromegaly.

Acromegaly is a rare, seriously debilitating condition that usually develops over many years, characterised by excessive secretion of growth hormone (GH) and insulin-like growth factor 1 (IGF-1). In the vast majority of patients (>99%), it is caused by a GH-secreting pituitary adenoma. Acromegaly is associated with a two to three fold increase in mortality. Factors contributing to increased mortality include higher prevalence of hypertension, hyperglycaemia or diabetes, cardiovascular disease, cardiomyopathy and sleep apnoea.

The clinical manifestations of acromegaly are due to the peripheral actions of the GH excess and elevated IGF-1 concentrations and/or local tumour mass effect. The symptoms and signs of acromegaly can be divided into physical (changes due to excessive amounts of GH and IGF-1), metabolic (effects of excessive amounts of GH) and local (effects of the pituitary tumour).

The therapeutic goals are to reduce mortality to the expected age- and sex-adjusted rates by using treatments that either remove the tumour mass or control its growth and restore GH secretion and action to normal. The biochemical goals are to reduce the circulating IGF-1 levels to normal for age and sex and to reduce serum GH concentrations to < 1 µg/L (note that with pegvisomant, IGF-1 is used as the biochemical marker of activity as GH levels are not affected). The epidemiological data available suggest that reduction of GH to this level or normalisation of IGF-1 improves the standardised mortality rate of acromegalic patients to close to that of the general population. However, despite all the different therapeutic approaches available (as set out in the Patient Pathway), several real world studies suggest that a substantial number of patients do not achieve optimal biochemical control (Ghigo 2009, Madsen 2015).

Pegvisomant is a growth hormone receptor antagonist with a unique mechanism of action. It was granted a European licence in 2002 for use in patients who have uncontrolled acromegaly after surgery and/or radiotherapy and who have an incomplete response to somatostatin analogue therapy.

2 Definitions

Acromegaly is a condition which occurs in adulthood in which the body produces too much growth hormone (GH) and insulin-like growth factor 1 (IGF-1), leading to the excess growth of body tissues over time.

Growth hormone receptor antagonist is a drug that binds to the growth hormone receptor in place of GH, and therefore prevents GH from having an effect.

Pegvisomant (Somavert®) is a growth hormone receptor antagonist used in the treatment of acromegaly.

3 Aims and Objectives

This policy aims to define NHS England's commissioning position on pegvisomant as part of the treatment pathway for adult patients with acromegaly.

The objective is to ensure evidence based commissioning with the aim of improving outcomes for adults with acromegaly.

4 Epidemiology and Needs Assessment

Acromegaly is a rare condition with an estimated incidence of 3-4 cases per million population per year (McKeage K, 2015). Prevalence has been estimated at around 6 in every 100,000 people, which equates to a prevalence of 3,200 people in the UK with the condition (Orphanet report, 2014).

Acromegaly can affect people of any age, but it is typically diagnosed between the ages of 40-50, affecting males and females equally. The diagnosis is often delayed and can take over a decade from onset, as the symptoms develop gradually over time so patients and their families and GPs may not notice the changes or only notice small changes at first.

Over time patients can experience a range of symptoms that can have a severe impact on their quality of life. They may suffer from a range of disfiguring physical changes to their bodies (with corresponding psychological impact), a range of physical symptoms (such as obstructive sleep apnoea, joint pain, carpal tunnel syndrome and debilitating fatigue), and metabolic diseases including hypertension, cardiovascular disease, diabetes mellitus and impaired glucose tolerance. Therefore, acromegaly is associated with considerable morbidity and increased mortality (the rate of mortality among acromegaly patients with elevated GH and IGF-1 is between 2.6 and 3.5 times greater than in the general population (Samson S, 2015)).

The number of adult patients with uncontrolled acromegaly after first-, and second-line treatment in the UK is estimated to be approximately 350. Of these, it is estimated that the number of adults needing pegvisomant is approximately 150 at any one time (Howlett et al, 2013, Orphanet Report, 2014).

5 Evidence base

NHS England has concluded that there is sufficient evidence to support a policy for the routine commissioning of pegvisomant for adult patients with acromegaly.

a) What is the clinical effectiveness of pegvisomant in achieving the patient outcomes of interest in patients with acromegaly?

Four RCTs assessed the clinical effectiveness of pegvisomant. They included a total of 268 people with acromegaly followed up for between 12 weeks and one year. Effectiveness was mainly measured in terms of IGF-1 and GH levels. One RCT reported on mortality; a second assessed clinical symptoms and a third reported quality of life with regard to specific symptoms.

One RCT has shown that pegvisomant is effective in normalising IGF-1 levels in patients with acromegaly compared to placebo. In a mixed population where over 50% had had previous medical therapy, and when used as monotherapy, pegvisomant 20mg daily normalised IGF-1 levels in 89% of patients compared with 10% in the placebo group at 12 weeks ($p<0.001$). This was the primary outcome of a well conducted single, large multicentre randomised controlled trial. The trial included 112 participants with baseline levels of IGF-1 at least 1.3 times normal. The researchers reported few details on randomisation or blinding, but there was adequate follow up to 12 weeks. This trial has a low risk of bias and was the landmark trial on which marketing approval for pegvisomant was granted. The population is not strictly the population group (patients after failure of somatostatin analogue (SSA) therapy or intolerant of SSA) for whom this drug is indicated. In the group randomised to 20mg pegvisomant, 21 out of 28 (75%) had received somatostatin therapy and because of the inclusion criteria can be thought of as those without adequate control.

IGF-1 normalisation has been studied in one other randomised controlled trial that compared pegvisomant directly with a long-acting SSA in titrated doses. In this open label study, 118 participants naïve to radiation and medical therapy were randomised. The study was not blinded because of the nature of the titration regime and allocation concealment and method of randomisation are not reported. At 52 weeks follow up, 51% achieved normal IGF-1 levels on a titrated dose of pegvisomant compared to 34% of patients randomised to a titrated dose of long-acting octreotide, an SSA, difference not significant ($p=0.09$). This suggested a trend only. A secondary analysis stratified by severity (IGF-1 levels at baseline) found that patients with twice or more the upper limit of normal compared to those who had less than this at baseline, had a significantly greater normalisation at one year (52% with pegvisomant compared with 31% with long-acting octreotide ($p=0.05$ for the difference).

No significant changes in IGF-1 levels were recorded in a small trial of combination therapy lasting 16 weeks including 20 participants who had all been taking a long-acting SSA for at least three years. The researchers compared a combination of SSA and a weekly pegvisomant injection of 40mg to SSA therapy alone in a randomised

controlled crossover trial. The trial was powered to look at improvements in quality of life and symptom scores in people with acromegaly. It found that physical symptoms improved significantly (measured by the AcroQol) and that soft tissue swelling (one measure in the Patient Safety and Quality of Care) also improved significantly in the dual therapy phase of the trial.

Growth hormone (GH) levels in patients receiving pegvisomant increased significantly in one trial in line with its mode of action. However, a concern that this might lead to increasing pituitary size is not born out in the randomised controlled trials reported here. Further registry studies and post-marketing trials might provide further information on this.

These major trials and subsequent smaller, secondary analyses of these have found that the benefits attributable to normalised IGF-1 levels are associated with other improvements. Among the patients treated with 15 mg or 20 mg of pegvisomant daily in one RCT, ring size, soft-tissue swelling and excessive perspiration scores had improved at 12 weeks compared with placebo. In the same study, fatigue scores and overall scores for signs and symptoms also improved across all pegvisomant groups (10mg, 15mg, 20mg) compared with placebo. Similar improvements in overall quality of life and physical signs/symptoms were shown in a second RCT comparing pegvisomant with placebo in which all patients were on continuing SSA therapy. However, a third study comparing pegvisomant with octreotide, showed an improvement in AcroQOL scores from baseline in both groups, but the difference between groups was not significant.

Musculoskeletal outcomes were assessed in one randomised study. At baseline the bone turnover biomarkers were above the normal limit for osteocalcin (23%), PICP (19%) and NTx (32%). A significant decrease in these markers was observed in the pegvisomant group. The clinical significance of this finding was not reported.

Many people with acromegaly have diabetes or glucose intolerance and so the effect of pegvisomant on markers of glucose metabolism or blood glucose has been of interest and studied in three trials. In a head to head trial of pegvisomant combination therapy versus long-acting SSA in people who were already well controlled on SSA

monotherapy, no significant difference in fasting glucose or two hour levels was found. In a direct comparison between SSA and pegvisomant mean fasting glucose decreased in diabetic and non-diabetic patients on pegvisomant whereas octreotide LAR was associated with an increase at week 52 (p=0.005 and p=0.003 between groups, respectively). When compared with placebo pegvisomant monotherapy did not show any significant difference in blood sugar, fasting glucose or insulin levels. The product characteristics recommend that the dosage of diabetic medication in people with diabetes treated with pegvisomant is monitored.

No evidence was found relating to other outcomes of interest such as the effect of pegvisomant on co-morbidities associated with acromegaly.

b) Is there evidence that pegvisomant is more effective in some patient subgroups than others?

There is moderate level evidence from a secondary analysis of data from one RCT of 118 patients naïve to radiation or medical therapy that pegvisomant may be more effective than a long-acting SSA in patients with more severe disease (i.e. higher IGF-1 levels) at baseline.

The sub groups of patients not responding adequately to SSA therapies have been tested in two of the trials identified and reported above (see question 1(a)).

Patients already controlled on SSA therapies were investigated in two further trials looking at quality of life reported above (see question 1(a)) and a study of combination therapy looking to see if those patients well controlled on SSA can be successfully transferred to a reduced dose of SSA and low dose pegvisomant.

The Madsen trial included 18 acromegalic patients and was reported as a randomised parallel group study, though few details were recorded regarding the process of randomisation, allocation concealment or blinding. Patients, with a mean age of 54 years, were well controlled on SSA monotherapy, and randomised to unchanged SSA monotherapy or combination treatment with pegvisomant (15–30 mg twice a week) and SSA (half the usual dosage). It measured quality of life using the

EQ5D and PASQ alongside measures of glucose metabolism and found that, although combination therapy maintained IGF-1 levels, it did not provide significant additional benefits for patients over 24 weeks.

c) In people treated for acromegaly how strongly are IGF1 and GH measurements associated with long term mortality?

Two meta-analyses of observational studies and two subsequent observational studies identified have confirmed an association between IGF1 and GH measurements with long term mortality. This has been shown by a significant elevation in the standardised mortality ratio (SMR) a measure that compares the rates of observed mortality rates in acromegalic patients with the expected rates in a healthy population, standardised for the differences in age and sex between populations. Healthy populations have a SMR of 1.0. In these cohort or registry studies, people with acromegaly were treated in a variety of ways, but a meta-analysis shows that a near normal IGF-1 (or GH level) is associated with reduced mortality (SMR 2.5 in the elevated normalised IGF-1 group and 1.1 in the normalised IGF-1 group). The studies in the meta-analyses date back to 1970. There has been an improvement in mortality for the treated condition over time and the analyses are also subject to some confounding from a lack of randomisation. However, in the largest meta-analysis, there is a significant trend for studies that report higher than 70% rates of normalisation to show reduced mortality. The results suggest that a normal serum IGF-I level in people with acromegaly is associated with near normal mortality.

2. What is the safety and tolerability of pegvisomant in terms of:

a) Liver dysfunction?

The review found two studies which assessed liver function by the presence of the enzyme alanine transaminase (ALT). In one, a randomised comparison of pegvisomant with octreotide, both treatment groups saw significant hepatic enzyme elevations (more than three times the Upper Level of Normal (ULN)) in a similar proportion of patients (four (7%) on pegvisomant and four (7%) on octreotide), all of who had normal levels at baseline. As a result of increased liver enzyme levels, three

patients (two on pegvisomant and one on octreotide) withdrew from treatment; their ALT levels normalised on treatment discontinuation.

There was some indication of increased risk of liver dysfunction with pegvisomant combination treatment in a small secondary publication of 18 patients treated with reduced doses of SSA and pegvisomant, but the difference was not significant. Long term post-marketing studies might add further data and it is noted that the product characteristics recommend caution in prescribing pegvisomant if baseline liver tests are elevated.

b) Pituitary tumour growth?

In two RCTs, pituitary tumour size was not found to be significantly different with pegvisomant therapy when compared to placebo or octreotide, at least in the short term. Long term registry or post-marketing studies should continue to monitor this potential adverse effect reported in the literature.

c) Other side effects?

Pegvisomant has a number of associated safety concerns and adverse events, the more serious of which are changes to blood sugar levels (see question 1(a)) and liver problems (see question 2(a)).

Adverse events were described in two randomised trials. A similar number of adverse events occurred with pegvisomant and the SSA octreotide. The proportion of people having treatment-related adverse events was higher with the octreotide group (51% vs 38%); discontinuation due to these events was higher with pegvisomant but this difference was not significant (9% vs 4%, p-value not reported) when pegvisomant was compared with placebo. Treatment-related adverse events were reported to be mild to moderate in both groups. When compared with placebo the incidence of adverse events was similar across groups.

Another RCT (n=118) reported on mortality and found no difference between pegvisomant monotherapy and SSA (octreotide) over one year in those who were

radiation and medication therapy naïve (one death (2%) in each group). The deaths were not thought to be treatment-related.

3. How cost effective is pegvisomant in:

a) Patients with acromegaly who remain inadequately controlled with conventional therapy (monotherapy) compared to alternatives or no treatment?

Cost effectiveness has not been widely reported, however the cost effectiveness of pegvisomant relative to standard care was assessed in one UK based analysis, using 2009 assumptions. The model was based on the pegvisomant drug manufacturer's model, and appeared to compare pegvisomant monotherapy for individuals who are inadequately controlled, compared with long-acting SSA treatment. The assumptions in this model included a total annual cost for PEG of £30,482 (£100 per 20 mg dose) and for standard care of £15,409.

The model found that over a 20 year time horizon the cost effectiveness of PEG is very unlikely to fall below £80,000/QALY or £212,000/LYG.

No other cost effectiveness comparisons were identified, e.g. for combination therapy.

b) Patients with acromegaly who remain on dopamine agonists or somatostatin analogues (SSAs) (combination therapy) compared to alternatives or no treatment?

The review did not identify any studies to answer this question.

4. Supplementary questions

a) At what stage in the course of the disease would patients most benefit from using pegvisomant, as either monotherapy or combination therapy, to treat their acromegaly?

The implication from the secondary analysis of data by Ghigo 2009 suggests that people with more severe disease, defined as IGF-1 levels more than twice the upper limit of normal, benefit more from pegvisomant than those with lower IGF-1 levels.

b) Which patient groups would most benefit from the use of combination therapy (i.e. pegvisomant with SSA)?

The literature did not provide any direct evidence on whether particular groups of patients would benefit from the use of combination therapy, for example pegvisomant with SSA. However, it is noted that in the head to head trial of pegvisomant versus SSA therapy, pegvisomant did reduce mean fasting glucose further than SSA in diabetic and non-diabetic patients. This suggests that special consideration might be given to patients with poorly controlled diabetes; however, further studies of this are needed.

c) If there is optimal dose of pegvisomant as a monotherapy?

A number of studies trialled different daily doses of pegvisomant as a monotherapy. In a placebo-controlled trial, a daily dose of 20mg resulted in the best rates of IGF-1 normalisation. In the same study, questionnaire scores for clinical signs and symptoms were more consistently improved for participants on 15mg and 20mg pegvisomant when compared with placebo than for participants on 10mg pegvisomant.

d) If there is an optimal dose of pegvisomant as a combination therapy?

Different doses of pegvisomant in combination therapies were not tested against each other. One trial did use reduced doses of pegvisomant in combination therapy with half dose SSA therapy. Pegvisomant at a dose of 15–30 mg twice per week plus SSA (6.7–20mg octreotide per four weeks or 24–60 mg lanreotide autogel per four weeks) maintained IGF-1 at 24 weeks with no significant differences between the two groups. Although this was a small study, it suggests that it may be possible to use lower doses of pegvisomant which would be cheaper than full doses in combination therapies. This hypothesis will need further testing and is being addressed in an RCT due for completion in December 2018.

6 Criteria for Commissioning

Pegvisomant is commissioned in patients with uncontrolled acromegaly who have failed first, and second-line treatment options. It is not commissioned in combination with SSAs. All patients with active uncontrolled acromegaly will be considered for radiotherapy as third line therapy unless contraindicated (young age or the need to preserve anterior pituitary function). Third line therapy will include both radiotherapy and ongoing medical therapy until acromegaly is controlled. The criteria for different forms of radiation therapy (SRS vs SRT) and their roles are covered in Clinical Commissioning Policy Statement - Stereotactic Radiosurgery/Radiotherapy for Ocular Melanoma and Pituitary Adenoma D05/PS/a.

Inclusion criteria:

i. Patient presents with continued clinical features of acromegaly (disfiguration, metabolic); AND
ii. Baseline IGF-1 ≥ 1.3 times Upper Level Normal (ULN) (adjusted for age and sex) as assessed by blood test; AND
iii. Is unsuitable for OR shows incomplete response to first-line treatment (pituitary surgery); AND
iv. Shows incomplete response to second-line treatment (medical therapy as monotherapy - SSAs, or medical therapy in combination with radiation therapy - SRS/SRT); OR
v. Has significant adverse effects as a result of second-line treatment.

Exclusion criteria:

i. Baseline hepatic alanine transaminase enzyme elevations ≥ 3 times ULN; OR
ii. Presence of severe life-limiting complications of acromegaly.

Stopping criteria:

i. Failure to normalise levels of IGF-1 AND failure to reduce IGF-1 by 50% despite maximum titration after 6 months; OR
ii. Evidence of efficacy having been achieved with normalisation of IGF-1 levels three months after withdrawal of treatment. Once IGF-1 is normalised on

pegvisomant, the dose will be titrated downward and pegvisomant discontinued if IGF-1 remains normal (see Patient Pathway for further detail on process and duration); OR

iii. Serious adverse effects; OR

iv. Non-compliance indicated by elevated IGF-1, and clinical evaluation despite reasonable efforts to educate patients and/or secure regular drug administration; OR

v. Patient develops either related or unrelated severe life limiting condition(s).

7 Patient Pathway

There are three treatment options for patients with acromegaly: surgery, radiation therapy and medical therapy. Multimodal approaches including all three are often required. (Please see following page for Patient pathway diagram.)

Pituitary surgery is the first-line treatment of choice for most acromegaly patients and success rates of 75-95% can be achieved in the case of microadenomas; control rates are lower in patients with macroadenomas.

For those patients who are not suitable for surgery and/or do not show optimal disease control after surgery, there are two second-line options: medical therapy with a somatostatin analogue (SSA), or medical therapy in combination with radiation therapy (fractionated or single fraction):

1. Medical therapy: SSAs are effective in lowering IGF-1 levels in most patients even though complete normalisation may be achieved in a minority (c. 45% of those treated or c. 350 patients, Howlett et al., 2013).

2. Medical in combination with radiation therapy: For those patients who do not respond adequately to SSA with significantly elevated IGF-1, and are not contraindicated to irradiation (teenage young adults and/or women desiring fertility), radiation therapy in combination with SSA is the principal treatment option. Radiation therapy is effective at controlling the tumour but the

normalisation of IGF-1 is very delayed with a median of 10 years. In addition, there are significant adverse events including hypopituitarism, optic nerve damage and an increased risk of secondary malignancy. It is estimated that up to 22% of patients will require radiation therapy as part of their treatment (D05/PS/a).

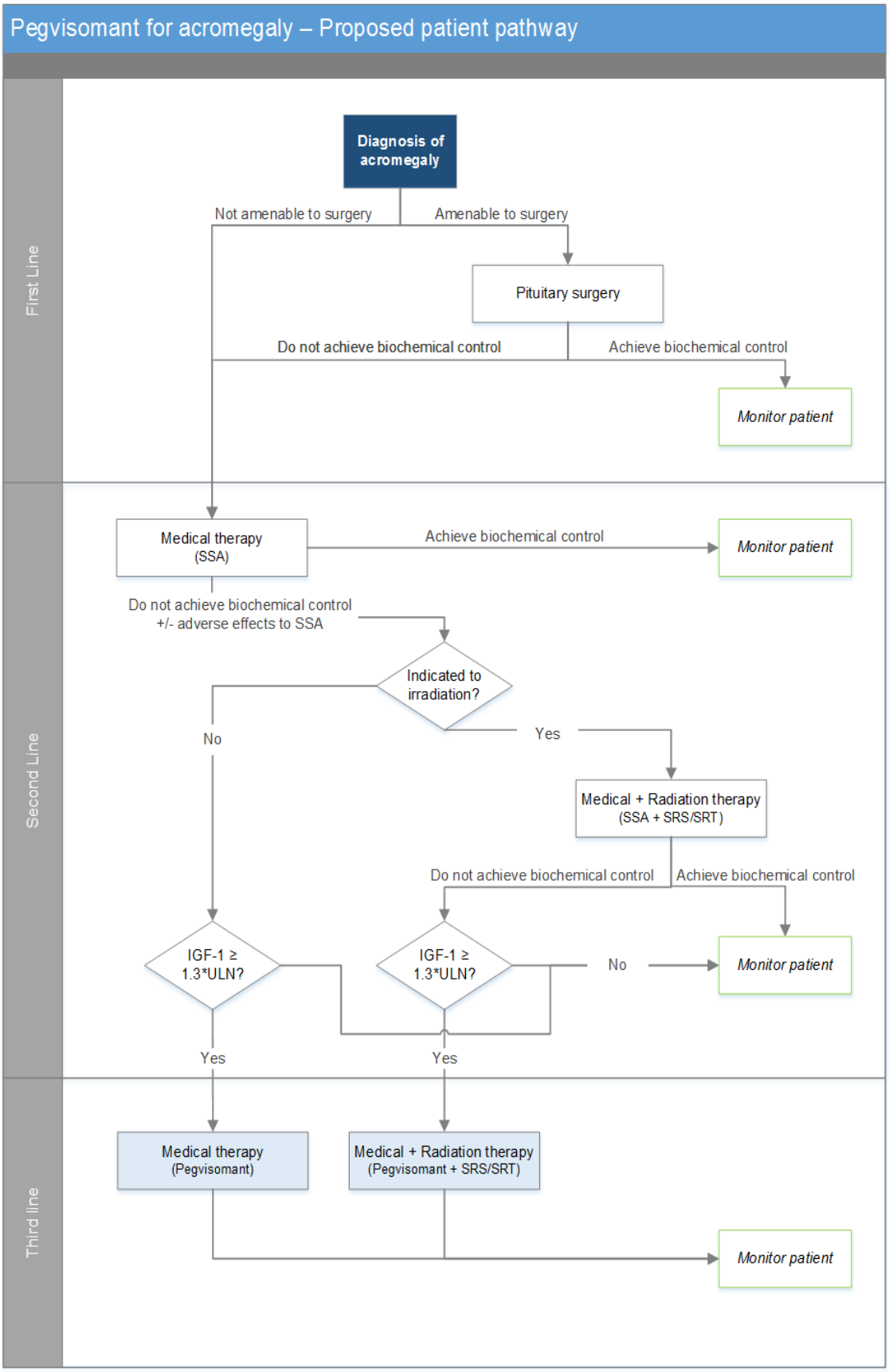
For patients who show incomplete response to second-line medical treatment (defined as IGF-1 ≥ 1.3x ULN - adjusted for age and sex) and/or have significant associated adverse effects to SSAs (e.g. development or worsening of Type 2 diabetes mellitus, severe gastrointestinal upset, or hypersensitivity reaction), medical therapy with pegvisomant is commissioned as third-line treatment. In most patients radiation therapy (fractionated or single fraction) is proposed in addition to pegvisomant as it is effective in limiting the duration of medical treatment and preventing tumour progression. In patients in whom radiotherapy is contraindicated, pegvisomant will be considered as third-line monotherapy with ongoing monitoring of the tumour remnant.

Pegvisomant treatment is prescribed with an initial dose of 80mg, then 10mg daily, increased in steps of 5mg daily according to response with a maximum dose of 30mg per day (as per EMA/410597/2015 license).

Once patients have normalised IGF-1 levels (<1.3x ULN - adjusted for age and sex), dose reduction of pegvisomant will occur every 2 years. If patients have reached the lowest effective dose of 10mg daily, pegvisomant can be suspended and discontinued if IGF-1 levels remain normal 3 months after discontinuation.

IGF-1 levels should be monitored by the prescribing consultant after initiation of treatment, following dose changes and after addition of concomitant medications, change in liver function or abnormal blood glucose levels. Primary care services may need to be involved in performing some routine blood tests (e.g. liver function and blood glucose tests) and treating any minor adverse events (such as upper respiratory tract infection, diarrhoea, head/shoulder/neck/arm/leg pain and nausea).

The pathway for treatment with pegvisomant is detailed in the Endocrine practice, 2011 (American Association of Clinical Endocrinologists) and the Endocrine Society, 2014 (Journal of Clinical Endocrinology & Metabolism).


Pegvisomant for acromegaly – Proposed patient pathway
First Line
Second Line
Third line
Diagnosis of acromegaly
Not amenable to surgery
Amenable to surgery
Pituitary surgery
Do not achieve biochemical control
Achieve biochemical control
Monitor patient
Medical therapy (SSA)
Achieve biochemical control
Monitor patient
Do not achieve biochemical control +/- adverse effects to SSA
Indicated to irradiation?
No
Yes
Medical + Radiation therapy (SSA + SRS/SRT)
Do not achieve biochemical control
Achieve biochemical control
IGF-1 ≥ 1.3*ULN?
IGF-1 ≥ 1.3*ULN?
No
Monitor patient
Yes
Yes
Medical therapy (Pegvisomant)
Medical + Radiation therapy (Pegvisomant + SRS/SRT)
Monitor patient

8 Governance Arrangements

Treatment decisions, including assessment of disease activity, will be taken by recognised pituitary multidisciplinary teams operating to the relevant NICE clinical guideline (NICE CSG10 - "Improving outcomes for people with brain and other central nervous system tumours") and who have undergone peer review. This will ensure that all the relevant clinicians (neurosurgery and clinical oncology) are involved to ascertain that other treatment modalities have been explored.

9 Mechanism for Funding

The funding and commissioning will be managed through the relevant local NHS England Specialised Commissioning Team.

10 Audit Requirements

Trusts will be required to ensure that processes are in place to track both decision to treat and evidence of effectiveness, e.g. IGF-1 level monitoring. Use of nationally approved software systems to track and audit use of pegvisomant by clinicians to be mandated, in order to ensure it is administered according to the Criteria for Commissioning.

Specific audit reports on the use of pegvisomant and specific outcomes in this patient group will be requested by the commissioner. Participation in research studies is encouraged.

In addition, all eligible patients should be invited to participate in the national acromegaly database (see the UK Acromegaly register).

11 Documents which have informed this Policy

NHS England Clinical commissioning policy statement: Stereotactic Radiosurgery/Radiotherapy for Ocular Melanoma and Pituitary Adenoma (D05/PS/a)

National Institute for Health and Care Excellent Clinical Guideline 10:
Improving outcomes for people with brain and other central nervous system tumours.

12 Date of Review

This document will be reviewed when information is received which indicates that the policy requires revision.

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