NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health Technology Appraisal

Ropeginterferon alfa-2b for treating polycythaemia vera without symptomatic splenomegaly

Draft scope

Draft remit/appraisal objective

To appraise the clinical and cost effectiveness of ropeginterferon alfa-2b within its marketing authorisation for treating polycythaemia vera without symptomatic splenomegaly.

Background

Polycythaemia vera is a disorder in which the bone marrow makes too many red blood cells. The World Health Organisation (WHO) currently classifies polycythaemia vera as a myeloproliferative neoplasm, which also includes essential thrombocythaemia and primary myelofibrosis.

As more red blood cells are made, the blood becomes thicker which can lead to complications such as bleeding problems and blood clots. Blood clots can cause strokes, heart attacks, or blockage of an artery in your lungs (pulmonary embolism) or in a vein deep within a muscle (deep vein thrombosis). Polycythaemia vera can lead to other problems such as scarring of the bone marrow (myelofibrosis) and acute myeloid leukaemia. It can also cause an increase in white blood cells. This can lead to severe itching, and in some cases the extra cells collect in the spleen which may then become enlarged. Other symptoms include headaches, blurred vision and breathlessness.

Polycythaemia vera is a rare condition, with an estimated prevalence in the UK of 6.05 per 100,000.[1] If these prevalence figures are applied to the mid-year 2017 population estimate of 66 million, there are around 4,000 individuals with polycythaemia vera in the UK. According to Hospital Episodes Statistics for England, there were 11,571 admissions in 2017-18 for 'polycythaemia vera'.[2] The median age of people presenting with polycythaemia vera is 60 years[3] and the estimated median survival is around 14 years.[4]

The aim of treatment is to reduce the risk of thrombosis and haemorrhage, minimise the risk of transformation to acute leukaemia and myelofibrosis and manage complications such as thrombosis and pruritus. The British Committee for Standards in Haematology recommends a range of treatments including periodic venesection (bloodletting), interferon, hydroxycarbamide, anagrelide, radioactive phosphorus or low dose busulfan. In addition, melphalan has a license for treating polycythaemia vera in the UK.

The technology

Ropeginterferon alfa-2b (Besremi, AOP Orphan Pharmaceuticals AG) is a mono-pegylated interferon α-2b isoform. It is administered by subcutaneous injection.

Ropeginterferon alfa-2b received a positive CHMP opinion and is likely to be indicated as monotherapy in adults for the treatment of polycythaemia vera without symptomatic splenomegaly. It has been studied in a clinical trial compared with hydroxyurea in adults with polycythaemia vera.

Intervention(s)	Ropeginterferon alfa-2b
Population(s)	Adults with polycythaemia vera without symptomatic splenomegaly
Comparators	Established clinical management for treating polycythaemia vera without symptomatic splenomegaly, which may include: • Hydroxycarbamide (hydroxyurea) • Interferon • Anagrelide • Busulfan • Radioactive phosphorus • Pipobroman • Melphalan • Ruxolitinib (for disease that is resistant to or intolerant to hydroxyurea) • Best supportive care
Outcomes	The outcome measures to be considered include: • mortality • symptom relief (including spleen size, itching and headache) • response rate • progression to acute myeloid leukaemia or myelofibrosis • adverse effects of treatment • health-related quality of life.

Economic analysis	The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year. The reference case stipulates that the time horizon for estimating clinical and cost effectiveness should be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared. Costs will be considered from an NHS and Personal Social Services perspective.
Other considerations	Guidance will only be issued in accordance with the marketing authorisation. Where the wording of the therapeutic indication does not include specific treatment combinations, guidance will be issued only in the context of the evidence that has underpinned the marketing authorisation granted by the regulator.
Related NICE recommendations and NICE Pathways	**Terminated appraisals** 'Ruxolitinib for treating polycythaemia vera' (terminated appraisal) (2015). NICE Technology Appraisal 356. **Related Cancer Service Guidance:** 'Haematological cancers: improving outcomes' (2016). NICE guideline 47. Review date to be confirmed. **Related NICE Pathways**: Blood and bone marrow cancers, Pathway last updated: September 2016, http://pathways.nice.org.uk/pathways/blood-and-bone-marrow-cancers
Related National Policy	The NHS Long Term Plan, 2019. NHS Long Term Plan NHS England (2018/2019) NHS manual for prescribed specialist services (2018/2019) Department of Health and Social Care, NHS Outcomes Framework 2016-2017: Domain 2. https://www.gov.uk/government/publications/nhs-outcomes-framework-2016-to-2017

Questions for consultation

In clinical practice, would polycythaemia vera without symptomatic splenomegaly be treated as a cancer?

In clinical practice, would ropeginterferon alfa-2b be used to treat all people with polycythaemia vera without symptomatic splenomegaly or would this differ based on the risk of thrombosis?

Have all relevant comparators for ropeginterferon alfa-2b been included in the scope?

- What treatments are currently used in the NHS to treat polycythaemia vera without symptomatic splenomegaly in adults?
- What interferon treatments are currently used? Are these used off-label to treat polycythaemia vera?
- Is ruxolitinib used to treat polycythaemia vera in clinical practice?
- Should the comparators be separated by risk of thrombosis?

Are the outcomes listed appropriate?

Are there any subgroups of people in whom ropeginterferon alfa-2b is expected to be more clinically effective and cost effective or other groups that should be examined separately?

Where do you consider ropeginterferon alfa-2b will fit into the existing NICE pathway, Blood and bone marrow cancers?

NICE is committed to promoting equality of opportunity, eliminating unlawful discrimination and fostering good relations between people with particular protected characteristics and others. Please let us know if you think that the proposed remit and scope may need changing in order to meet these aims. In particular, please tell us if the proposed remit and scope:

- could exclude from full consideration any people protected by the equality legislation who fall within the patient population for which ropeginterferon alfa-2b will be licensed;
- could lead to recommendations that have a different impact on people protected by the equality legislation than on the wider population, e.g. by making it more difficult in practice for a specific group to access the technology;
- could have any adverse impact on people with a particular disability or disabilities.

Please tell us what evidence should be obtained to enable the Committee to identify and consider such impacts.

Do you consider ropeginterferon alfa-2b to be innovative in its potential to make a significant and substantial impact on health-related benefits and how it might improve the way that current need is met (is this a ‘step-change’ in the management of the condition)?

Do you consider that the use of ropeginterferon alfa-2b can result in any potential significant and substantial health-related benefits that are unlikely to be included in the QALY calculation?

Please identify the nature of the data which you understand to be available to enable the Appraisal Committee to take account of these benefits.

To help NICE prioritise topics for additional adoption support, do you consider that there will be any barriers to adoption of this technology into practice? If yes, please describe briefly.

NICE intends to appraise this technology through its Single Technology Appraisal (STA) Process. We welcome comments on the appropriateness of appraising this topic through this process. (Information on the Institute's Technology Appraisal processes is available at http://www.nice.org.uk/article/pmg19/chapter/1-Introduction).

References

1 Moulard O, Mehta J, Fryzek J et al. Epidemiology of Myelofibrosis (MF), Polycythemia Vera (PV) and Essential Thrombocythemia (ET) in the European Union. Blood. 2012; 120: 1744.

2 NHS Digital. Hospital Admitted Patient care Activity, 2017-18: Diagnosis. Available from: https://files.digital.nhs.uk/B2/5CEC8D/hosp-epis-stat-admi-diag-2017-18-tab.xlsx Accessed January 2019

3 McMullin MF, Bareford D, Campbell P et al. (2019). A guideline for the diagnosis and management of polycythaemia vera. A British Society for Haematology Guideline. British Journal of Haematology. 184(2): 176-191.

4 Patient info: Polycythaemia Vera. Available from: https://patient.info/doctor/polycythaemia-vera-pro#nav-7. Accessed April 2019.