UK National Screening Committee

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Screening for Neuroblastoma in Children

19 November 2015

Aim

1. To ask the UK National Screening Committee to make a recommendation, based upon the evidence presented in this document, whether or not screening for Neuroblastoma in children meets the NSC criterion to support the introduction of a population screening programme.

   This document provides background on the item addressing screening for Neuroblastoma in childhood.

Current Recommendation

2. The current UK NSC recommendation, developed in 2005, is that universal screening for Neuroblastoma in infancy is not recommended.

3. This recommendation is based on a Health Technology Appraisal (HTA), published in 2003 that highlighted key uncertainties in; the optimal age of screening, the screening strategy (single or multi-stage testing), the lack of a prognostic markers and the poor methodological design of studies to date.

This Review

4. This condition is being reviewed as part of the triennial cycle of reviews. Bazian were commissioned in December 2014 to produce an update report focusing on two key questions. These were based around the issues raised in the 2003 HTA and the issues that led to similar screening programmes ceasing in other countries, notably in Japan.

5. The review focused more broadly on screening of newborns and children up to 18 months in order to address literature suggesting that screening at a later age may be beneficial.

6. The conclusion of this current review is that population screening for Neuroblastoma in children should not be recommended. The key findings to support this conclusion have been summarised below:

   The evidence was insufficient, in terms of quality and volume, to accurately answer these key questions, however, secondary conclusions could still be made from lower quality data which relate to the screening programme criteria;

   a. The screening programme; there is no high quality evidence from randomised controlled trials or non-randomised controlled studies that neuroblastoma screening (at any age) reduces mortality from the disease. **Criterion 13 not met**

   - no studies sufficiently addressed the primary concern that neuroblastoma screening could lead to over-diagnosis of biologically favourable cases who would otherwise have regressed spontaneously without treatment had they not been screen-detected

   - while some retrospective studies suggest screening at a later age may prevent over-diagnosis, currently no high quality studies have assessed the effect of screening at 18 months, either compared to no screening, or to screening at six or 12 months

   - some retrospective studies have proposed several other disease characteristics and markers that may have prognostic significance. However, no prospective studies have assessed the accuracy of these variables for distinguishing between those of favourable and unfavourable prognosis. Furthermore these variables have not been assessed as a primary screening test. Therefore, the use of this system would not reduce the unnecessary and potentially harmful intervention in children whose disease may have regressed had they not been screen-detected

   - additionally, no high quality studies have been published that have assessed the effect of single compared to multi-stage screening

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Consultation

7. A three month consultation was hosted on the UK NSC website. Communication of the consultation was promoted through both PHE Events and the PHE Screening Twitter platform. Direct emails were sent to stakeholders of whom 12 organisations were contacted directly. Annex A.

8. No responses were received from the consultation.

Recommendation

9. The committee is asked to approve the following recommendation:

Universal screening for Neuroblastoma in children is not recommended

Based upon the criteria set to recommend a population screening programme, Neuroblastoma screening in children did not meet the following primary requisites of the UK NSC 22 point criteria;

Criteria		Met/Not Met
Section 1 - Criteria for appraising the viability, effectiveness and appropriateness of a screening programme		
The Condition		
2.	The epidemiology and natural history of the condition, including development from latent to declared disease, should be adequately understood and there should be a detectable risk factor, disease marker, latent period or early symptomatic stage.	Not met ✘
The Screening Programme		
13.	There should be evidence from high quality randomised controlled trials that the screening programme is effective in reducing mortality or morbidity. Where screening is aimed solely at providing information to allow the person being screened to make an "informed choice" (eg. Down's syndrome, cystic fibrosis carrier screening), there must be evidence from high quality trials that the test accurately measures risk. The information that is provided about the test and its outcome must be of value and readily understood by the individual being screened.	Not met ✘

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Annex A

List of organisations contacted:

1. The British Association for Cancer Research,
2. British Association of Surgical Oncology
3. Cancer Research UK
4. CLIC Sargent
5. The Henry Allen Trust
6. Institute of Child Health
7. The Neuroblastoma Society
8. Rarer Cancers Forum
9. Royal College of Paediatrics and Child Health
10. Royal College of Physicians
11. Royal College of Physicians of Edinburgh
12. Royal College of Surgeons