UK National Screening Committee

Screening to prevent adverse outcomes from primary hypertension in children and young people

31 October 2018

Aim

1. To ask the UK National Screening Committee (UK NSC) to make a recommendation, based on the evidence presented in this document, whether or not screening to prevent adverse outcomes from primary hypertension in children and young people meets the UK NSC criteria for a systematic population screening programme.

Current recommendation

2. The 2010 UK NSC review of screening for hypertension in children and young people concluded that systematic population screening is not recommended.

   The conclusions from this review were that:

   - the prevalence of childhood hypertension in the UK was unknown and it was not clear what the significance of this condition was in terms of childhood morbidity and mortality;
   - there was not a simple, agreed validated test for identifying childhood hypertension;
   - there was a paucity of evidence about the long term consequences of not treating childhood hypertension or the long term effects of pharmacological interventions on growth and development; and
   - there were no UK or international clinical trials or cost-effectiveness studies of the full screening programme that showed a reduction in morbidity or mortality or that screening was value for money.

Evidence Summary

3. The 2018 evidence summary was undertaken by Solutions for Public Health, in accordance with the triennial review process. https://legacyscreening.phe.org.uk/chlamydia-pregnancy

4. The current evidence summary addresses questions generated by uncertainties and lack of evidence identified in the previous review. The aim is to assess whether the volume and direction of the evidence produced since the 2010 UK NSC review is sufficient to change the 2018 UK NSC recommendation on screening to prevent adverse outcomes from primary hypertension in children and young people.

5. The conclusion of the 2018 evidence summary is that population screening to prevent adverse outcomes from primary hypertension in children and young people should not be recommended. The volume, quality and direction of evidence published since 2010 does not indicate that there have been significant changes in the evidence base.

    - Overall there is reasonable evidence to suggest that an increasing prevalence of elevated blood pressure in children and adolescents in the UK is likely, and there is good evidence from Europe, the US and Australia that high blood pressure is an independent factor associated with target organ damage in this population. However, the evidence indicates that prevalence estimates of essential hypertension in children aged 3 to 18 in the UK remain uncertain. **Criterion 1 not met**

    - Overall the available evidence on the diagnostic accuracy of screening tests for primary hypertension in children and young people shows that the current accepted clinical test for measuring elevated blood pressure in this population does not have adequate sensitivity or positive predictive value for the purpose of population screening. This method would result in identifying many children with elevated blood pressure who do not have hypertension. **Criterion 4 not met**

    - Some types of non-pharmacological interventions (such as school based lifestyle interventions on body mass index; either dietary, increased physical activity or education) alone showed some reduction in blood pressure, but it was not clear if this would result in any clinically meaningful change and could be maintained over the long term.

      Evidence for the effectiveness of pharmacological interventions alone for children with primary hypertension was limited and not generalisable to children with hypertension detected via a population based screening programme.

Evidence for the effectiveness of combined pharmacological and non-pharmacological interventions in lowering blood pressure was limited to one RCT reported in a systematic review and a small promising observational study that reported regression of target organ damage.

Overall, there was no evidence available that interventions can be effective in managing hypertension in screen-detected in children.

There was no evidence that starting pharmacological, non-pharmacological or a combination of both interventions in childhood reduces hypertension in adulthood.
Criterion 9 not met

- No studies demonstrating the effectiveness of a screening strategy for hypertension in children and young people to prevent hypertensive disorders in later life were found; nor on the optimal ages to initiate screening, time intervals at which to repeat screening, and on who should perform the screening.
  Criteria 11 and 12 not met

Consultation

6. A three month consultation was hosted on the UK NSC website. Direct emails were sent to stakeholders of whom eight organisations were contacted directly. **Annex A**

   Only one comment was received from the British & Irish Hypertension Society which supports the conclusions of the evidence summary and suggests that studies investigating the definition and prevalence of hypertension in children in the UK need to be undertaken with some urgency (See **Annex B** for full comment).

Recommendation

7. The Committee is asked to approve the following recommendation:
   Systematic population screening to prevent adverse outcomes from primary hypertension in children and young people is not recommended as a population screening programme in the UK.

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Criteria (only include criteria included in the review)	Met/Not Me
The Condition	
1. The condition should be an important health problem as judged by its frequency and/or severity. The epidemiology, incidence, prevalence and natural history of the condition should be understood, including development from latent to declared disease and/or there should be robust evidence about the association between the risk or disease marker and serious or treatable disease	**Not Met**
The Test	
4. There should be a simple, safe, precise and validated screening test.	**Not Met**
The Intervention	
9. There should be an effective intervention for patients identified through screening, with evidence that intervention at a pre-symptomatic phase leads to better outcomes for the screened individual compared with usual care. Evidence relating to wider benefits of screening, for example those relating to family members, should be taken into account where available. However, where there is no prospect of benefit for the individual screened then the screening programme shouldn't be further considered.	**Not Met**
The Screening Programme	
11. 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**
12. There should be evidence that the complete screening programme (test, diagnostic procedures, treatment/ intervention) is clinically, socially and ethically acceptable to health professionals and the public.	**Not Met**

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Annex A

List of organisations contacted:

1. British & Irish Hypertension Society
2. Faculty of Public Health
3. Institute of Child Health
4. Royal College of General Practitioners
5. Royal College of Physicians
6. Royal College of Physicians and Surgeons of Glasgow
7. Royal College of Physicians of Edinburgh
8. Vascular Society of Great Britain and Ireland

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Annex B

Comment from Jackie Howarth on behalf of the British & Irish Hypertension Society

The limitations and uncertainties sections of the report are good - and essentially show the lack of evidence regarding a few key questions: definition of hypertension in children and adolescents; prevalence of hypertension; treatment strategies and efficacy. This should translate into action.

We support the conclusions but take from the review, that studies into definition and prevalence of hypertension in children in the UK need to be done with some urgency. We would also ask for a national registry or other form of pooled data to bring together experiences in treatment of children with hypertension. Whilst it appears reasonable to propose general population screening, the factors that define targeted screening in high-risk children need to be determined; such factors could include family history of hypertension and other CV diseases, low birth weight, hypertension in pregnancy, and probably more but again there aren't any robust data available.