UK National Screening Committee

Screening for Osteoporosis in Postmenopausal Women

08 November 2019

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 for osteoporosis in postmenopausal women meets the UK NSC criteria for a systematic population screening programme.

Current recommendation

- The current UK NSC recommendation is that a screening programme for osteoporosis in postmenopausal women should not be introduced. This was based on a review of the evidence in 2013 which found there had been no randomised controlled trials assessing the clinical and cost effectiveness of screening and treatment which were relevant to current standards of care in the UK
- studies of dual energy X-ray absorptiometry (DEXA) alone had demonstrated poor sensitivity and a UK based RCT of screening using DEXA in combination with the Fracture Risk Assessment (FRAX) tool had not reported at the time of the review,
- there were no studies exploring the frequency of screening
- there was concern about the limited impact of pharmacological treatment on non-vertebral fractures, that the evidence on these interventions was not directly generalisable to a screened population and that the duration of treatment appeared uncertain from the available evidence
- there was a lack of consensus between the two leading sources of guidance in the UK regarding which women should be offered treatment
- a screening programme aiming to prevent osteoporotic fractures would not address the majority of fractures in postmenopausal women
- there were concerns that the DEXA capacity required to support a screening service was not available and that service expansion would be required

- although osteoporosis would be the target of a screening programme, the identification of women with osteopenia may create pressure to expand the screening programme. There had been no systematic review of the effectiveness of treatment and management options in women with reduced bone mineral density (BMD) meeting the criteria of osteopenia.

Evidence Summary 2018/19

2. The current review was undertaken by Solutions for Public Health in accordance with the UK NSC evidence review process https://www.gov.uk/government/publications/uk-nsc-evidence-review-process/uk-nsc-evidence-review-process

3. The 2019 review found that there have been changes to the evidence base since the previous review. For example, two RCTs comparing a systematic approach screening to usual care had been published at the time of the review. One RCT, SCOOP, was undertaken in the UK. The other RCT, ROSE, was undertaken in Denmark. In both studies screening consisted of the use of FRAX followed by DEXA. The primary outcomes of both trials related to reduction of osteoporotic fracture.

4. However, the volume, quality and direction of new evidence published up to September 2018 was insufficient to change the conclusions of the previous UK NSC review. This is because:
   - there is RCT evidence that systematic screening does not result in a reduction of osteoporotic fracture, all cause fracture or mortality compared to usual care
   - there are potential approaches to screening for osteoporosis or risk of different types of fracture with varying test performance but a lack of studies in the specific population of interest
   - concerns remain about the limited impact of pharmacological intervention on non-vertebral fractures and uncertainty about whether the evidence on the effectiveness of intervention is generalisable to a screened population
   - there is an absence of studies demonstrating that screening has an impact on fracture-related morbidity or mortality
   - the opportunity cost of a full population screening programme is uncertain.

However, the review recommends that the reduction in hip fracture, observed as a secondary outcome in the SCOOP RCT and in a post hoc analysis in the ROSE RCT, may warrant further exploration.

Consultation

5. A three month consultation ending on the 2 August 2019 was hosted on the UK NSC website. Direct emails were sent to 13 stakeholders. **Annex A**

Consultation response

6. One response was received and was discussed at the recent meeting of the adult reference group (ARG). This was from the Royal Osteoporosis Society, drafted by two members of the SCOOP RCT team. **Annex B**

   I. The main focus of the response relates to the UK SCOOP RCT. The response acknowledges that the trial did not result in a statistically significant reduction of osteoporosis related fractures, all fractures or mortality. However, the response states that the RCT demonstrated that systematic screening would improve the number of women identified for assessment of fracture risk and that the reported reduction of hip fractures could be replicated in the whole population of women aged 70 – 85 years.

   Response: Hip fracture is an important outcome, but this is uncertain for two reasons.

   First, the SCOOP trial design does not allow for a direct comparison to be made which would support this inference. In the study 38,600 women were invited to participate and those who consented were randomised. An intention to treat (ITT) analysis was undertaken in the 13,029 randomised participants. The study reported a reduction in hip fractures in the intervention arm with a statistically significant hazard ratio of 0.72 (95% CI 0.59 – 0.89). This contrasts with the ROSE trial. This study randomised 34,229 women to the screening and usual care arms at the point of invitation. An ITT analysis was undertaken in the whole invited population and there was no difference in the hip fracture rates in the intervention and control arms (3.1% in both).

Second, current NICE guidance was introduced in 2012 during the SCOOP study. This makes recommendations for opportunistic risk assessment which are very close to SCOOP study screening arm. As such it is not clear whether the study comparison is directly relevant to current practice and, consequently, whether the same magnitude of effect on hip fracture would result from a systematic approach to risk assessment.

II. The response also drew attention to a trial of screening using FRAX and DEXA which was not included in the UK NSC review.

Response: This is the SALT RCT. This study was published after the review search had been completed. It randomised women over 65 years, with least one fracture risk factor, to screening or usual care. Discussion with the reviewer suggested that this study may not have met the review inclusion criteria. It is worth noting that the study found no statistically significant effect for all fracture, osteoporotic fracture, hip fracture, falls or mortality.

III. The response also drew attention to a meta analysis which confirmed the reduction in hip fracture reported in the SCOOP study.

Response: The meta analysis was undertaken by the SALT study team and pooled the results of the SCOOP, ROSE and SALT studies. This reported a statistically significant reduction in hip fracture. However, this was reported as a conference abstract and the methods informing the analysis were, therefore, not available. In addition, a more recent systematic review, undertaken within the EUnetHTA network, found that variation in the design of the SCOOP and ROSE trials prevented pooling of their respective results. For example, the ROSE trial used FRAX and DEXA to assess osteoporotic fracture risk whereas the SCOOP trial used these tools to assess hip fracture risk. As such the impact on hip fracture achieved by screening remains difficult to gauge.

Recommendation

7. The UK NSC is asked to approve the following recommendation:
   A systematic screening programme for osteoporosis is not recommended in the UK.

However, hip fracture is an important outcome and future work should focus attention on this area. In addition, the UK NSC Secretariat should continue to liaise with NICE on this topic.

Criteria (only include criteria included in the review)	Met/Not Met
Section 1 - Criteria for appraising the viability, effectiveness and appropriateness of a screening programme	
The Test	
4. There should be a simple, safe, precise and validated screening test.	**Not Met**
The Treatment	
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 should not 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" (such as Down's syndrome or 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**
14. The opportunity cost of the screening programme (including testing, diagnosis and treatment, administration, training and quality assurance) should be economically balanced in relation to expenditure on medical care as a whole (value for money). Assessment against this criteria should have regard to evidence from cost benefit and/or cost effectiveness analyses and have regard to the effective use of available resource.	**Uncertain**

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Annex A

List of organisations and individual contacted

- Age UK
- British Geriatrics Society
- The British Society for Rheumatology
- Faculty of Public Health
- National Osteoporosis Guideline Group
- Royal College of General Practitioners
- Royal College of Nursing
- Royal College of Physicians
- Royal College of Physicians and Surgeons of Glasgow
- Royal College of Physicians of Edinburgh
- Royal College of Radiologists
- Royal Osteoporosis Society
- Society for Endocrinology

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Annex B

9b. Annex B_Osteo_ROS Consulta