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Clinical Radiology

Abbreviated breast MRI: the importance of performing homogeneous prospective studies to precisely measure its diagnostic accuracy - author response

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Abbreviated breast MRI: the importance of performing homogeneous prospective studies to precisely measure its diagnostic accuracy – author response

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Author contributions

1 guarantor of integrity of the entire study N/A

2 study concepts and design N/A

3 literature research: Lyn Jones

4 clinical studies N/A

5 experimental studies / data analysis N/A

6 statistical analysis N/A

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1 [Abbreviated breast MRI: the importance of performing homogeneous](#)
2 [prospective studies to precisely measure its diagnostic accuracy – author](#)
3 [response](#)

4

5 We wish to thank Pulido et al.(1) for their pertinent and insightful comments about our systematic
6 review and meta-analysis of abbreviated breast MRI (abMRI)(2), and about the systematic review
7 and meta-analysis by Baxter et al.(3) that was published in the same issue of Clinical Radiology
8 earlier this year.

9

10 Pulido et al. (1) highlighted the striking difference in the conclusions of the quality review of the
11 evidence made in the two meta-analyses. Our own study, Geach et al.(2) concluded that only a very
12 low level of confidence could be placed in the evidence synthesised from the studies, while Baxter
13 et al.(3) concluded that there was a low risk of bias amongst the studies they evaluated. We note
14 that of the consecutive screening studies included in the meta-analyses, and assessed for evidence
15 quality, only 3 studies overlapped between the two reviews (were included in both reviews' quality
16 assessments)(4–6).

17

18 For two of these 3 overlapping studies (4,6), both Baxter et al. and our own review found a high risk
19 of bias around the studies' index tests (due to readers interpreting the full protocol MRI (fpMRI)
20 directly after the abMRI). In the third study that was common to both reviews(5) timing of the
21 fpMRI and abMRI reading was not a concern, but Baxter et al. instead noted concerns about the
22 applicability of the reference standard, because the amount of follow up was not specified and so

23 they classified the study as “unclear risk of bias”. In our review, this lack of specification of the
24 reference test contributed to our lowering our confidence in study design from high to moderate.
25 Therefore, the judgements made by the two reviews about risk of bias for the 3 overlapping studies
26 were quite similar.

27

28 In addition, however, our own review also noted that in all 3 overlapping studies, and indeed in all 5
29 of the studies we assessed for the meta-analysis, only the positive fpMRI scans received a biopsy,
30 whereas the positive abMRI scans did not. This we described in our review as the reference
31 standard differing by index test. This factor was not mentioned by Baxter et al. but for our own
32 review contributed to a lowering of our confidence in the quality of the evidence. We also lowered
33 our confidence in evidence quality by considering all the studies together, noting wide confidence
34 intervals, particularly around sensitivity and also heterogeneity between studies of both study
35 populations and MRI protocols. Interestingly, Baxter et al. commented that for the consecutive
36 screening studies there were insufficient numbers of studies to assess heterogeneity statistically.

37

38 The differences between the conclusions of the two reviews therefore in part arise from only 3
39 studies overlapping between the two reviews and in part from a different methodology being used:
40 Baxter et al. used QUADAS-2(7) while we used GRADE(8).

41

42 We agree with Pulido et al.(1) that the heterogeneity, both of MRI protocol studied and of study
43 populations, between published studies of abMRI is an important cause for reduced levels of
44 confidence in the resultant evidence.

45

46 We also agree with Pulido et al.(1) that abMRI has great potential to provide cost effective
47 screening through early detection of breast cancer, in particular earlier detection of the most
48 clinically significant, aggressive cancers, currently detected larger and later than other less
49 aggressive cancers by mammographic screening(9). The potential for abMRI to be cost effective
50 hinges on its high sensitivity for small, aggressive breast cancers combined with faster (than full
51 protocol MRI) acquisition and reporting throughput(2–4,10,11).

52

53 Current uncertainties around feasibility, effectiveness and cost effectiveness will need to be
54 addressed before the risk/benefit balance of introducing abMRI into clinical screening practice can
55 be fully understood and recommendations to policy makers made with confidence. These
56 unknowns are likely to be both protocol and population specific and will influence how the cost
57 effectiveness of abMRI compares with that of current screening modalities: full protocol MRI (high
58 risk population) and digital mammography (moderate and population-risk populations). Current
59 uncertainties include issues around: recall rates, biopsy rates, MRI biopsy rates, scanner and
60 workforce capacity and workforce interpretation-training.

61

62 Finally, we agree with Pulido et al.(1) that high quality research is required to answer these
63 uncertainties and to determine both the optimal abMRI protocol and the population(s) most likely
64 to benefit from screening with abMRI.

65

66 [References](#)

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103

Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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