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OPEN PEER REVIEW

# Breast-specific Gamma Imaging (BSGI) as a Complementary Imaging Tool for BI-RADS 0 and 4a Lesions on Mammography or Ultrasonography

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## About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

More about open peer review: brieflands.com/knowledgebase/opr

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## 1 Original submission

2 comments · 13 Nov 2021 – 9 Feb 2022

### Referee 1 Reviewer

MAJOR REVISION 13 Nov 2021

First of all, I thank the authors for submitting their manuscript to the IJR.
Regarding this article, it can be said that it is almost well written and also has a large sample size, but it is necessary to pay attention to the following points:
1. The type of study is cross-sectional and should be stated in the abstract and the methods section of the full text.
2. When a combination of two or more diagnostic methods is used, the method used for the statistical analysis must be specified. Because two analysis approaches, consecutive or simultaneous, can be used, one of them must be selected depending on the purpose of the study and the nature of the confirmation test.
3. Important demographic and clinical variables of patients should be presented in a table in the initial section of the results.
4. Sensitivity and specificity values should be presented separately for important and clinically important variables.
5. In each of the presented tables, the total number of cases should be equal when using the indicators of sensitivity, specificity, etc. for each of the three diagnostic methods, but isn't that the case?
6. The manuscript must be written in accordance with the journal's instructions.
7. Abbreviations such as ultrasonography should be written based on common MeSH terms.
8. There is a published paper entitled "Breast-specific gamma imaging or ultrasonography as adjunct imaging diagnostics in women with mammographically dense
breasts" that can be used for revisions.
9. It is better to change the title of the study to include the names of the three methods.

### Editor-in-Chief

MAJOR REVISION 9 Feb 2022

Dear authors,
Your article needs Major Revision.
Regards

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# Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

## > Reviewers' Comments:

***Dear Reviewer 1.***

*Thank you for taking the time to read this paper. I edited the manuscript, figures and tables as the reviewer's advices. I will revise it well so that it can be published in the eminent Iranian Journal of Radiology.*

***Dear Reviewer 2.***

*Thank you for reading this paper and giving me advice. I edited it as advised, but please let me know if there's something missing.*

Q1. The type of study is cross-sectional and should be written in the abstract and full text method.

A1. I added "cross-sectional study" to the abstract and manuscript (study population).

Q2. When a combination of two or more diagnostic methods is used, the method used for the statistical analysis must be specified. Because two consecutive or simultaneous analysis approaches can be used, depending on the purpose of the study and the nature of the confirmation test, one of them must be selected.

A2. I added detailed information about the combination of diagnostic methods in the *"statistical analysis"* section. And this is explained in a schematic diagram in modified Figure 2.

The McNemar test was used to compare the sensitivity and specificity of each method.

Q3. Important demographic and clinical variables of patients should be presented in a table in the initial section of the results.

A3. I presented the age of the patients and the results of histopathologic evaluations of malignant breast lesions in Table 1.

Q4. Sensitivity and specificity values should be presented separately for important and clinically important variables.

A4. I revised Table 2 and Table 3 for better visualization and presented important diagnostic values in the contents of the manuscript.

Q5. In each of the presented tables, the total number of cases should be equal, using the indicators of sensitivity, specificity, etc. for each of the three diagnostic methods, but is not it?

A5. Nine of patients with 10 lesions refused mammography due to radiation exposure. So I wrote "Nine patients with 10 lesions did not undergo MMG because of patient refusal." in the "*method"* section of the manuscript.

Q6. The manuscript must be written in accordance with the journal's instructions.
A6. I checked it again and corrected it.

Q7. Abbreviations such as ultrasonography should be written based on common MeSH terms.
A7. As you advised, ultrasonography will be changed to US and mammography to MMG.

Q8. There is a published paper entitled "Breast-specific gamma imaging or ultrasonography as adjunct imaging diagnostics in women with mammographically dense breasts" can be used for editions.
A8. Thank you so much for your kindness. It was very helpful and I was able to edit this manuscript well.

Q9. It is better to change the title of the study and it include the names of the three methods.
A9. I changed the title to “Breast-specific gamma imaging (BSGI) as an additional imaging tool for BI-RADS category 0 or 4a lesions on mammography or ultrasonography”.

Additionally, I removed previous figure 3, changed ultrasonography image of modified figure 4, and added new figure 5.

***Dear Reviewer 3.***

*First of all, thank you for reading this paper and giving me advice. I edited it as advised, but please let me know if there's something missing.*
*Our study has the advantage of including a large number of patients who performed BSGI and obtained histopathologic results. And it is meaningful that BSGI can be applied not only to MMG but also to US in that it showed improvement of diagnostic performance by selectively applying BSGI to BIRADS category 0 or 4a lesions on MMG and category 4a lesions on US. In addition, as a study conducted by an institution where biopsy is actively performed, it showed the high false-positive rate, which is a disadvantage of breast US, and ultimately suggested that biopsy recommendations can be reduced by applying BSGI.*

Q1. Grammatical edition.
A1. I checked and revised the grammatical content again. Nevertheless, if there is anything difficult to understand, please point out in detail.
I attached a file of the certificate for English editing.

Q2. The aim of the study be clearly stated at the end of introduction.
A2. I stated the aim of this study in the objectives section more clearly.

Q3. Figure 2 needs number of patients be added in the boxes.
A3. I modified the Figure 2 and added the number of patients in the boxes as recommended.

Q4. Table 2 (previous Table 1). Comparison of the performance of BSGI, MMG and US) needs percentages.
A4. I revised the Table 2 and Table 3 for better visualization and presented the percentages. And I presented important diagnostic values in the contents of the manuscript.

Q5. Statistical method to compare added value of breast specific imaging and mammography should be clearly defined and more elaborative.

A5. I added detailed information about the combination of diagnostic methods in the *“statistical analysis”* section. And this is explained in a schematic diagram in modified Figure 2.
The McNemar test was used to compare the sensitivity and specificity of each method.

Additionally, I removed previous figure 3, changed ultrasonography image of modified figure 4, and added new figure 5.

***Dear Reviewer 4.***

*Thank you for taking the time to read this paper. I edited the manuscript, figures and tables as the reviewer's advices. I will revise it well so that it can be published in the eminent Iranian Journal of Radiology.*

***Dear Reviewer 5:***

*Thank you for taking the time to read this paper.*

*This study was approved by the institutional review board of Konyang University Hospital, IRB file No; KYUH 2021-05-011 (https://www.e-irb.com:3443/devlpg/nlpgS200.jsp). And this work has not received any funding. I declare there is no relationship with any companies whose products or services may be related to the subject matter of the article.*

*Additionally, I removed previous figure 3, changed ultrasonography image of modified figure 4, and added new figure 5.*

## 2 Revision 1

1 comment · 20 Apr 2022

### Editor-in-Chief

MINOR REVISION 20 Apr 2022

Dear authors,
Your article needs Minor Revision.
regards

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# Revision 2

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

> Reviewers' Comments:

Reviewer 1:

At present, this manuscript edited appropriately, and it is ready for publication in the IJR according to methodology.

Reviewer 2:

Dear authors,

The paper merit publication in its current form. It should be kept in mind that BSGI is a label with many delicate and fine differences in different centers; different criteria, radioactivity doses and cameras are used which may affect the results. consequently, publication of different reports is valuable and may become meaningful.

Reviewer 3:

This paper is suitable for publication in IJR.

➔ Thank you for your all comments.

> Associate Editor's Comments:

Associate Editor 1:

Dear authors,

The manuscript could be accepted and proceed for further acts.

Associate Editor 2:

1-this sentence is unclear [line 20[: “The interpretation was performed through subcategorization by applying BSGI to MMG category 0, 4a, and US category 0 lesions.” Please write in a better style. → I moditied this sentence.

➔ “Subgroups were classified by adding BSGI results to BI-RADS category 0 or 4a lesions in MMG and BI-RADS category 4a lesions in US. The diagnostic performance of each subgroup was compared.”

2-the authors have mentioned: “This retrospective, cross-sectional study enrolled” a study could not be simultaneously retrospective and cross-sectional. Please correct.in addition, in the method section, it is unclear if the study is retrospective or cross sectional because both of them have been mentioned. Please correct.

➔ I corrected this sentence.

“This retrospective study was approved by the institutional review board of ******* Hospital.”

3- in line 84, “ ……. each multiple lesion was ….” Should be “ …… each lesion was …..”

4-please add numbers to titles and sub-titles.

➔ I added numbers.

5-the authors mentioned MSG4a+BSGI [line 147] that should be MMG4a.

➔ I corrected it.

6-this sentence is wrong: “There were 548 patients (median age, 54.5 years [25-89 years]) with 638 breast lesions were enrolled” we can delete “There were” at the beginning

7-in line 253, there are two have in sequence. Please delete one of them

➔ I deleted it.

8-in line 258, please change “analyses” to “analysis”. [similar point for line 272]

➔ I changed it.

9-please add all abbreviations in footnote in tables 2 and 3[for example MMG, BSGI, ….]

➔ I added all abbreviations in footnote in table 2 and 3.

10-please change figure 1 legend as: “Flow chart of Patients’ enrollment”

➔ I changed it.

11-please add full term of abbreviations in legend of figures.

➔ I modified.

> EIC Decision:

Dear authors,

Your article needs Minor Revision.

regards

## 3 Revision 2

1 comment · 9 May 2022

### Editor-in-Chief

ACCEPT 9 May 2022

Dear authors,
Your article is acceptable for publication in IJR.
Regards