**Study Novelty**

***What is already known about the study?***

* Contrast-based MRI screening is used for early breast cancer detection in average and high-risk breast cancer women.
* To some extent, the addition of mammography can slightly aid the cancer detection process over MRI alone, but certainly increases specificity.
* However, ultrasound supplemental use only decreases specificity.
* For particularly high-risk groups, MRI has been found to have greater sensitivity in comparison to ultrasound and mammography in the detection of invasive cancer.

***Study Contribution/Value***

* This review aims at evaluating the efficacy and accuracy of MRI in comparison to mammography and ultrasound in high-risk women. A systematic review may help in determining the incremental accuracy of breast MRI as a screening tool for breast cancer patients through comparison of parameters such as sensitivity, specificity, positive predictive value, and negative predictive value, area under the curve, and cancer detection rate.

***Practical Implications on the field of Study***

* The study has offered evidence that the cost-effectiveness of applying routine MRI to examine and observe breast cancer in women with increased risk depends on the level of lifetime risk of the particular patient, the cost of the MRI involved.
* The present findings have shown that staggering MRI sessions in breast cancer patients would likely be a cost-effective strategy for high-risk patients.
* The high costs and low specificity of MRI are restricting factors for annual examination schedules.

**Supplementary File I**

(MRI and Breast Cancer Diagnosis) OR (MRI for Women at High Risk of Breast Cancer) OR (MRI and Dense Breast Tissues) AND (MRI and Screening Tool) OR (Breast MRI and Young Patients) OR (MRI and BRCA gene)).

(MRI and Breast Cancer Diagnosis) OR (MRI for Women at High Risk of Breast Cancer) OR (MRI and Dense Breast Tissues) AND (MRI and Screening Tool) OR (Breast MRI and Young Patients) OR (MRI and BRCA gene)).

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