EUSOBI Journal Club No.3 / The Kaiser School discusses the DENSE trial

Dear listener,

Below you will find an alphabetic list of the papers discussed during our journal club.

Next to the bibliographic details, you will find a short note by us on the bullet points of each paper with a personal comment.

Please do not hesitate to contact us in case of any questions,

Best,

Clemens, Matthias, Mirjam, and Pascal

Evans, A. and Vinnicombe, S. (2017) 'Overdiagnosis in breast imaging', Breast (Edinburgh, Scotland), 31, pp. 270–273. doi: 10.1016/j.breast.2016.10.011.

Comprehensive overview on the topic written by two experts in the field.

Kaiser, C. G., Dietzel M. et al. (2020) 'Cost-effectiveness of MR-mammography vs. conventional mammography in screening patients at intermediate risk of breast cancer - A model-based economic evaluation', European Journal of Radiology, p. 109355. doi: 10.1016/j.ejrad.2020.109355.

Cost effectiveness study using the data of the DENSE trial. In the context of their economical background, Clemens and Matthias demonstrate here the cost-effectiveness of breast MRI. Have a look on figure 2 to appreciate three secondary findings:

1. *The specificity of breast MRI may be an issue from a clinical perspective. From a health economical perspective, the variation of specificity was among the least important cost-drivers of breast MRI.*
2. *A substantially more important cost-driver was the rate of interval cancers. The DENSE trial did prove that breast MRI significantly reduces interval cancers.*
3. *We used a conservative billing approach. Actually, lower costs of breast MRI in a screening scenario is to be expected (lower procedural costs due to economies of scale and tailored short protocols etc.). This could further increase cost-effectiveness breast MRI.*

Lehman, C. D. et al. (2016) 'National Performance Benchmarks for Modern Screening Digital Mammography: Update from the Breast Cancer Surveillance Consortium', Radiology, 283(1), pp. 49–58. doi: 10.1148/radiol.2016161174.

Important paper providing benchmarking data on the PPV of breast imaging in screening. Number are missing in the editorial to the DENSE trial and questions the broad statements given herein.

Mathioudakis, A. G. et al. (2019) 'Systematic review on women's values and preferences concerning breast cancer screening and diagnostic services', Psycho-Oncology, 28(5), pp. 939–947. doi: https://doi.org/10.1002/pon.5041.

In scientific discussion, the focus is typically set on oncologic and radiologic evidence. We believe the personal preference of our patient and the women´s perspective must be taken into account.

There is substantial psychological evidence on this topic. Here, Mathioudakis et al. provide a systematic review on women's values and preferences concerning breast cancer screening.

Particularly women´s perspectives on "false positive" diagnoses and potential "overdiagnosis" provide a counterpart to epidemiologists views.

Nagtegaal, I. D. et al. (2011) 'Prognosis and pathology of screen-detected carcinomas', Cancer, 117(7), pp. 1360–1368. doi: https://doi.org/10.1002/cncr.25613.

Essential European data on the distribution of different tumor subtypes in (non MRI) screening. Supports benchmarking of the MRI results and somewhat questions the hypothesis of "overdiagnosis" within the DENSE trial.

Suter, M. B. et al. (2020) 'Diagnostic accuracy of contrast-enhanced spectral mammography for breast lesions: A systematic review and meta-analysis', The Breast : official journal of the European Society of Mastology, 53, pp. 8–17. doi: 10.1016/j.breast.2020.06.005.

Metaanalysis on contrast-enhanced spectral mammography. Key results from this recently published Italian paper are: Sensitivity = 85% and specificity =77% (as compared to 99% and 98% for MRI reported by Bennani-Baiti et al. PLoS One 2016 in lesions not presenting as mammographic microcalcifications and 92% and 82% reported by Bennani-Baiti and Baltzer Radiology 2017 for MRI in BI-RADS 4 mammographic calcifications).

Author conclude: "CESM shows a suboptimal sensitivity and specificity (…) it could be considered only as a possible alternative test for breast lesions assessment when mammography and ultrasound are not conclusive or MRI is contraindicated or not available".

Verburg, E. et al. (2020) 'Computer-Aided Diagnosis in Multiparametric Magnetic Resonance Imaging Screening of Women With Extremely Dense Breasts to Reduce False-Positive Diagnoses', Investigative Radiology, 55(7), pp. 438–444. doi: 10.1097/RLI.0000000000000656.

Promising paper on the use of AI in order to further reduce the rate of (false) recalls in breast MRI screening. Original data from the DENSE trial are used.