Mini Review

Further Qualitative Anatomic Testing Interpretation - Even by a Machine - Is not True AI and is not the answer for Women with Dense Breasts - or for Women with any Type of Breast Tissue -

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INTRODUCTION

Researchers from Utrecht recently published yet another paper [1] on the use of Magnetic Resonance Imaging (MRI) demonstrating an additional failed attempt to understand the importance of qualitative versus quantitative imaging, and anatomic versus physiologic imaging. The implications of this failure here cannot be overstated.

Whenever a study or medical report discusses sensitivity (we found what you have), specificity (we erroneously told you there was a medical problem when there wasn't) - or permutations of this; e.g. positive predictive value (the probability that we guessed correctly) - the reader should recognize there has been an interpretation of a qualitative image and not a true measured (quantitative) objective outcome.

Not to be outdone, other researchers have recently shown, that using a machine algorithm to interpret the visual results from qualitative mammography [2] provided equivalent outcomes to that obtained by human interpretation. Qualitative results, interpreted by a human or a machine algorithm (pseudo-AI), does not equal or even begin to approach true AI implemented by quantification [3].

One of the primary hallmarks of cancers is that they are tissue, which no longer respond as expected. Although one could argue that cancerous tissue changes should be expected when the cells are continually exposed to a carcinogenic environment. The quantitative demonstration of this is marked by transitional changes in cellular metabolism and regional blood flow supply - which can be measured [4] - to meet those increased metabolic demands [5] and yet, as these two studies [1,2] continue to demonstrate, there are clinicians and researchers who continue to hold onto the erroneous belief that if they continue to use qualitative methods, they will somehow miraculously improve the outcomes of qualitative anatomic tests.

As Einstein reportedly stated, Insanity is doing the same thing over and over again and expecting a different outcome. The current trend now includes the incorrect use of the term Artificial Intelligence. Qualitative imaging, be it mammography or MRI, with or without a machine algorithm for interpretation, is NOT the answer for women with dense breasts or women without dense breasts.

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