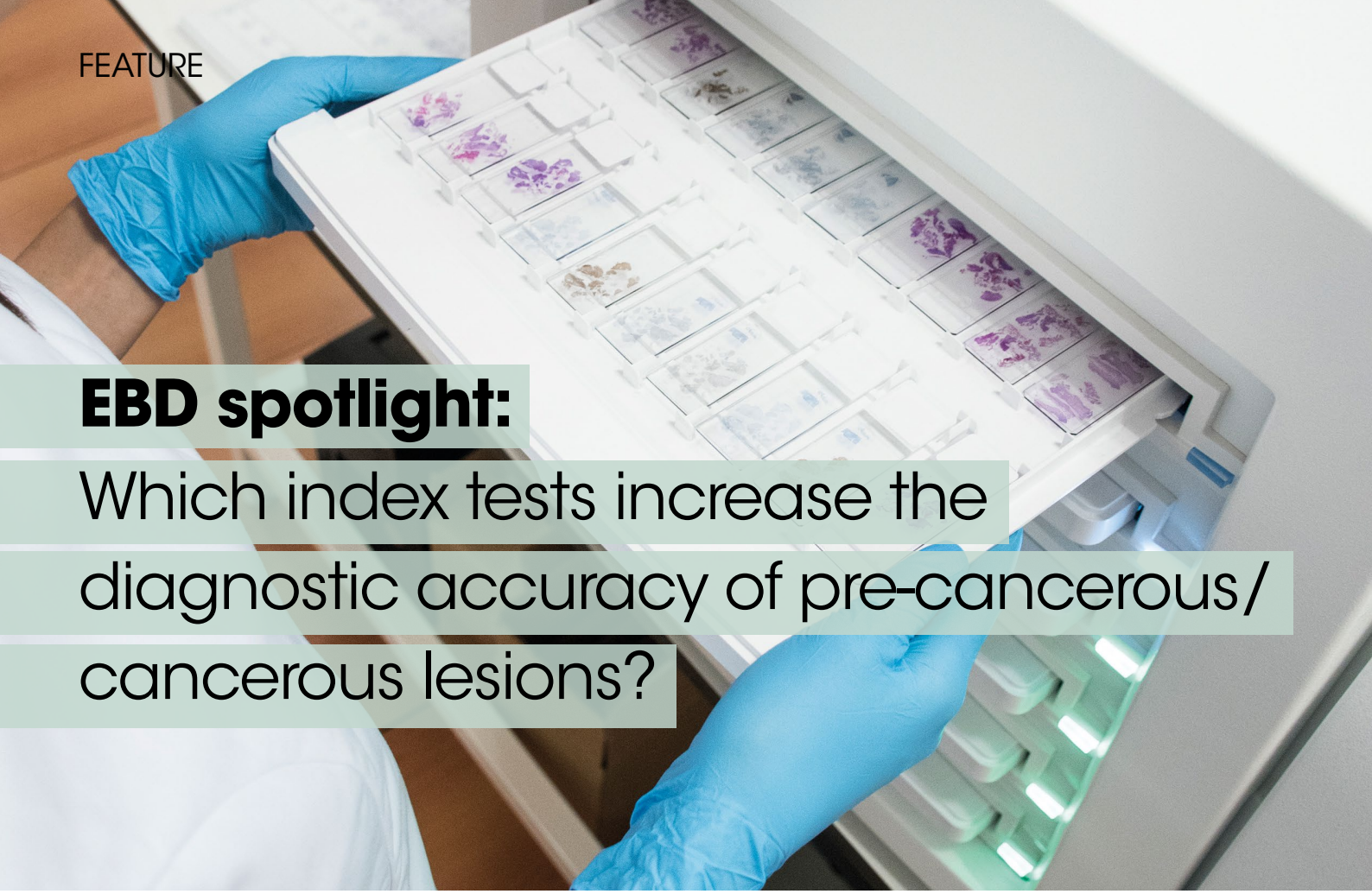
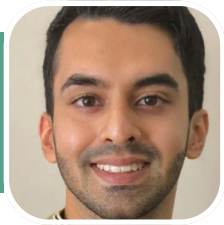


EBD spotlight:

Which index tests increase the diagnostic accuracy of pre-cancerous/cancerous lesions?



In a new regular feature for *BDJ Team*, **Manas Dave**[1] focuses on a review summary published in our sister journal *Evidence-Based Dentistry*.

EBD review summary: *The light at the end of the tunnel? Can light-based tests increase the accuracy of our diagnoses of pre-cancerous/cancerous lesions?* was published in *Evidence-Based Dentistry* on 25 March 2022.[1]

The review summary focuses on: *Diagnostic tests for oral cancer and potentially malignant disorders in patients presenting with clinically evident lesions.*[2]

Background

There are a reported 12,400 new head and neck cancer cases in the UK every year with oral squamous cell carcinoma (OSCC) the most common head and neck cancer. Survival ranges between 19–59% over ten years, with an estimated mortality rate of 4,100 persons per year in the UK.[3]

Pre-cancerous lesions include oral potentially malignant disorders (OPMDs) however not all of these conditions will progress to oral squamous cell carcinoma (OSCC). The risk of progression to oral cancer has been shown to increase with the grade of dysplasia[4] hence early diagnosis and monitoring of lesions is important to identify progression. There are a number of index tests that are adjuncts to conventional oral examination and can improve diagnostic test accuracy. This includes (but is not limited to) vital staining (eg toluidine blue), cytology (eg brush biopsy), blood and saliva analysis and light-based detection. The aim of this systematic review and meta-analysis was to estimate the diagnostic accuracy of index tests.

Methods

An electronic database search of Medline and EMBASE was conducted on 20 October 2020. Additionally, the US National Institutes of Health Ongoing Trials Register and World Health Organisation International Clinical Trials Registry Platform were searched for ongoing trials. The inclusion criteria included adults (aged 16 or over) presenting to primary

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> *'Current cytological tests cannot discriminate between grades of dysplasia (as they lack tissue architecture), therefore a tissue biopsy is required for diagnosis.'*

or secondary care with a clinically evident suspicious or innocuous oral lesions. Index tests were allowed to be used alone or in combination. Cross-sectional diagnostic test accuracy studies (or consecutive series) and randomised studies of diagnostic test accuracy were included and any retrospective data excluded.

Results

- Sixty-four articles were included evaluating staining (n = 20), cytology (n = 20), light-based technology (n = 23) and combination index tests (n = 9)
- Two studies were low risk of bias across all domains and 33 studies were at low concern for applicability across the three domains
- Oral cytology; sensitivity 0.90 (95% CI 0.82-0.94), specificity 0.94 (95% CI 0.88-0.97). 1,496 of 2,892 diseased lesions (any dysplasia or OSCC) identified (51.7%).
- Light-based; sensitivity 0.87 (95% CI 0.78-0.93), specificity 0.50 (95% CI 0.32-0.68). 1,204 of 2,587 diseased lesions identified (46.5%)
- Vital staining; sensitivity 0.86 (95% CI 0.79-0.90), specificity 0.68 (95% CI 0.58-0.77). 1,056 of 1,780 diseased lesions identified (59.3%)
- Vital staining plus adjunct; sensitivity 0.78 (95% CI 0.45-0.94), specificity 0.71 (95% CI 0.53-0.84). 250 of 683 diseased lesions identified (36.6%).

Conclusions

'At this point in time, none of the adjunctive tests can be recommended as a replacement for the current standard of a surgical or scalpel biopsy and histological assessment. Yet, the performance of cytology compared to histopathology shows promise…'

Comments

This systematic review and meta-analysis highlights the range of adjunctive tools to identify pre-cancerous and cancerous lesions and their sensitivity and specificity. This review included a large number of studies and was able to determine the diagnostic test accuracy between different index tests. As OPMDs can affect a broad range of the oral mucosa, there may have been differences between the index test and reference standard. Current cytological tests cannot discriminate between grades of dysplasia (as they lack tissue architecture), therefore a tissue biopsy is required for diagnosis.

References

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