INTISARI

Intraoral *bitewing* merupakan metode standar untuk deteksi karies proksimal karena dapat mencitrakan mahkota gigi dari permukaan distal kaninus hingga distal permukaan molar paling posterior tanpa tumpang tindih. Pemanfaatan sinar-X di bidang kedokteran gigi terutama teknik intraoral *bitewing* menerapkan prinsip *As Low As Reasonably Achievable* (ALARA) untuk mengurangi efek radiasi. *Near-Infrared Light Transillumination* (NILT) merupakan metode deteksi karies yang dikembangkan tanpa menggunakan radiasi pengion sehingga dapat dijadikan alternatif untuk mengatasi permasalahan tersebut. *Narrative review* ini ditujukan untuk mendeskripsikan kelebihan dan kekurangan antara teknik intraoral *bitewing* dengan NILT beserta perbedaan hasil deteksi karies proksimal dari masing-masing teknik tersebut

Pencarian literatur pada *narrative review* ini menggunakan Google Scholar, ScienceDirect, dan Pubmed dengan kriteria inklusi yaitu artikel berjenis *original article, research article, case report,* dan *textbook* ilmiah, serta artikel berbahasa Inggris maupun Indonesia yang diterbitkan tahun 2010-2021. Kriteria eksklusi berupa *review article*, artikel yang menunjukkan duplikasi, artikel yang tidak dapat diakses secara utuh, dan artikel tanpa metode penelitian. Total literatur yang dikaji sebanyak 45 artikel.

Berdasarkan *review*, NILT merupakan metode deteksi karies proksimal tanpa disertai risiko radiasi sehingga tidak memberikan efek berbahaya pada tubuh dan dapat diulangi sesuai kebutuhan. Kelebihan lainnya, NILT lebih sensitif daripada radiograf untuk mendeteksi jaringan keras gigi yang mengalami demineralisasi pada fase awal. Nilai sensitivitas dan spesifisitas NILT lebih tinggi daripada radiografi *bitewing* sehingga dapat dijadikan alternatif pemeriksaan radiografi. Meskipun demikian, NILT tidak dapat mencitrakan karies yang telah meluas hingga pulpa karena NILT tidak memiliki daya tembus sebesar sinar-X, sehingga radiografi *bitewing* masih merupakan standar pemeriksaan pada deteksi karies.

Kata Kunci: Karies, Radiografi, *Bitewing,* Intraoral, Transiluminasi

ABSTRACT

Intraoral bitewing radiography is the standard method used to detect proximal carious lesions because it can image the crown of the tooth from the distal surface of canine to the distal surface of the most posterior molar without overlapping. As Low As Reasonably Achievable (ALARA) principle is applied in the use of medical X-ray including in the bitewing intraoral radiography to reduce the effects of radiation. Near-Infrared Light Transillumination (NILT) is a caries detection method that does not utilize ionizing radiation which can be used as an alternative to overcome these problems. This narrative review was intended to describe the advantages and disadvantages between bitewing radiography and NILT and the differences in the results of proximal caries detection between the two techniques.

The databases used for literature searching including Google Scholar, ScienceDirect, and Pubmed. The inclusion criteria were original articles, research articles, case reports, published in English and Bahasa Indonesia scientific textbooks during 2010-2021. The exclusion criteria were review articles, articles containing duplication, inaccessible full paper articles, and original articles which does not contain research methods. A total of 45 literatures were discussed in this narrative review.

Based on the review that has been conducted, it was found that NILT is a method of detecting proximal caries without the risk of radiation so that it does not have a harmful effect on the body and can be repeated as often as necessary. Another advantage is that NILT is more sensitive than radiographs for detecting the early stages of demineralization in teeth. The sensitivity and specificity of NILT are higher than bitewing radiographs, so NILT can be used as an alternative for radiographic examination. However, NILT can not image the caries that has extended to the pulp because NILT does not have the penetrating capability like X-rays, so that radiography is still being the standard procedure to detect caries.

Keywords: Caries, Radiography, Intraoral, Bitewing, Transillumination