Periodontal infections tend to be site-specific, mostly confined to the periodontal pocket. Therefore, much attention has been directed towards the use of local drug delivery agents as adjuncts to avoid potential side effects and increased antibiotics resistance with systemic antimicrobials use. There has been an emergence of alternative pharmacologic therapies besides local antimicrobials in the form of photodynamic therapy, hyaluronic acid, probiotics, and other experimental non-antimicrobial drugs. However, the answer to the question of which is the most efficient local drug delivery or adjunctive agent for dental practitioners to utilize and provide the maximum benefit to the patient remains still doubtful.

### Methods

To review the efficacy of current commercially available local drug delivery and adjunctive agents used in non-surgical periodontal therapy in adults treated for periodontitis.

The PubMed/MEDLINE, EMBASE and CENTRAL databases were searched to identify any randomised controlled human intervention studies with professionall participation. The search criteria used were for photodynamic therapy, hyaluronic acid, chlorhexidine, tetracycline, minocycline, metronidazole, doxycycline, "non-surgical", "scaling and root planing", "adjunct", "subgingival", and "local delivery". Bibliographies from previous systematic reviews on the topic were scrutinised. Only relevant literature in the English language were selected, and the use of experimental or discontinued drugs was excluded.

### Discussion & Conclusion

Overall, many commercial pharmacotherapeutic local drug delivery and adjunctive agents had been clinically tested in the non-surgical treatment of periodontitis. The adjuncts from the selected studies above had reported mean differences ranging from -0.60 to 1.10 mm of PPD reduction and -0.66 to 1.92 mm of CAL gain. In general, most of these adjunctive agents had shown minimal but positive clinical results compared with mechanical debridement alone. However, the methodologies and clinical results vary within and between each agent. Therefore, it is difficult to conclude and support the superiority of one local agent over another.

### Clinical Implications & Future Research Recommendations

The application of local drug delivery and adjunctive agents could provide some benefits in treating periodontitis. Additional randomised controlled trials with medium- (at least 6 months) to long-term (at least 12 months) studies are needed to determine the efficacy of local agents as their usefulness in the long term is still debatable, taking into account the cost-benefit ratio with moderate clinical results.

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