

A Questionnaire Based Survey with Physicians for Effectiveness and Tolerability of Secnidazole in Periodontitis at Sri Lanka

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ABSTRACT

Background: Periodontitis is a chronic inflammatory disease affecting supportive gingival tissue. Since most of periodontal infections causes orofacial infections, the prescribing of antimicrobials by physician has become important in dental practice. Antimicrobials are the mainstay of the treatment of periodontitis. **Objective:** To conduct questionnaire-based survey among physicians in Sri Lanka for the effectiveness and tolerability of secnidazole in periodontitis. **Methodology:** A prospective observational study was conducted for six months with physicians based in Sri Lanka. A questionnaire was prepared in consultation with key opinion leaders, including ten questions which focused on effectiveness and tolerability of 2gm secnidazole in patients with periodontitis. Physician's voluntary consent was taken for their participation in the survey. **Results:** A total of forty-one responses were received from physicians, it was observed that 90.2% physicians prescribed antibacterial followed by antiprotozoal in dental infections. Most common symptom for the prescription of secnidazole was in periodontal pus 53.7% accompanied by inflammatory symptoms 46.3%, and bleeding gums. Secnidazole 2gm single dose was preferred by 87.8% physicians for its convenient dosing over the metronidazole, tinidazole and ornidazole. Physicians found secnidazole was good to excellent for effectiveness in 97.6% and tolerability in 97.6% for periodontitis. **Conclusion:** Secnidazole 2gm single dose was found effective and tolerable in the treatment of periodontitis. It is preferred over the other nitroimidazole drugs like metronidazole, tinidazole and ornidazole for its convenient dosing. From the survey it is observed that, physicians were in favor of Secnidazole for treatment of periodontitis.

Keywords: Secnidazole, Periodontitis, Questionnaire-based Survey, Effectiveness, Tolerability

INTRODUCTION

Periodontal diseases are prevalent both in developed and developing countries and affect about 20-50% of global population. High prevalence of periodontal disease in adolescents, adults, and

older individuals makes it a public health concern. Several risk factors such as smoking, poor oral hygiene, diabetes, medication, age, hereditary, and stress are related to periodontal diseases [1].

Periodontal disease is a chronic inflammatory disease affecting the supportive tissue of teeth. In its advanced form it is characterized by a periodontal ligament loss, surrounding alveolar bone damage. Also, the migration of junctional epithelium along the tooth surface with formation of pocket between gum and teeth which provide favorable environment for growth and proliferation of microbes including anaerobic pathogenic bacteria. It is main cause of tooth loss that deemed one of the main risks to the oral health. Approximately 800 species of bacteria found in the oral cavity and there is complex interaction of bacterial infection and host response and modified by behavioral factors like, smoking can result in periodontal disease [1,2].

Periodontal disease treated by removal of bacterial deposits from the tooth surface and maintain oral health. Conventionally, mechanical debridement of tooth surfaces as the primary antimicrobial measure. But specific bacteria play a leading role in periodontal disease. So, antimicrobial drugs have been used as adjunct to mechanical treatment [2]. Since most human periodontal infections leads to orofacial infections, the prescribing of antimicrobials by physicians has become important aspect of dental practice. Hence, antimicrobials medicines are prescribed by majority of physicians in periodontitis. The often-prescribed antibiotics are, penicillin, azithromycin, tetracyclines, clindamycin, metronidazole, and ciprofloxacin. In current scenario, extensively used antibiotics are amoxicillin, amoxicillin & clavulanate, metronidazole in management of dental infections [3]. Secnidazole, nitroimidazole class of drug which is chemically related to the commonly used metronidazole. These drugs have common spectrum of activity against anaerobic micro-organisms, and especially effective in the treatment of protozoal infections viz, amoebiasis, giardiasis, trichomoniasis and bacterial vaginosis. However, secnidazole has a longer terminal elimination half-life than commonly used drugs like metronidazole. Thus, the treatment with secnidazole is shorter and significantly more effective than other imidazole class drugs [2,4]. Although, secnidazole could be used to alleviate the treatment of dental infections [5]. There is scope of secnidazole in management of dental infections due to its pharmacokinetics peculiarities especially in periodontitis.

The aim of this questionnaire-based survey study is to investigate the physician's response for effectiveness and tolerability of secnidazole in periodontitis at Sri Lanka.

METHODOLOGY

Study Design

A prospective observational survey study was conducted by using predefined questionnaire. The questionnaire was prepared in consultation with key opinion leaders, including ten questions which focused on effectiveness and tolerability of 2gm secnidazole in patients with periodontitis. The survey was conducted with physicians based in Sri Lanka and conducted for six months from August 2021 to January 2022. Physicians voluntary consent was taken in person for their participation in the survey.

Data Collection and Analysis

All the responses were collected in person. At the end of six months, total forty-one responses were received from physicians. We had analyzed all these data and statistical approach was descriptive and categorical variables were expressed as numbers and percentage.

RESULTS

Total forty-one responses were received out of fifty provided questionnaire. The remaining nine responses excluded from statistical analysis as they were incomplete. It was observed that 90.2% physicians prescribed antibacterial followed by antiprotozoal in treatment of dental infections. In this survey, it was seen that 90.2% physicians prescribed secnidazole in patients with periodontitis. Most common symptoms for the prescription of secnidazole were periodontal pus 53.7% accompanied by inflammatory symptoms 46.3%, and bleeding gums 4.9% (Figure 1).

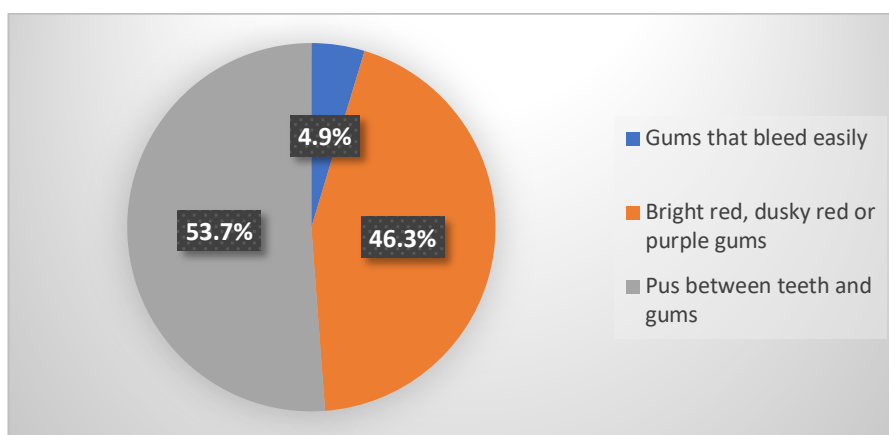


Figure 1- Secnidazole prescription increased by symptoms

Secnidazole 2gm single dose was preferred by physicians for its convenient dosing 87.8%, effectiveness 41.5%, and tolerability 2.4% over the metronidazole, tinidazole and ornidazole. (Figure 2).

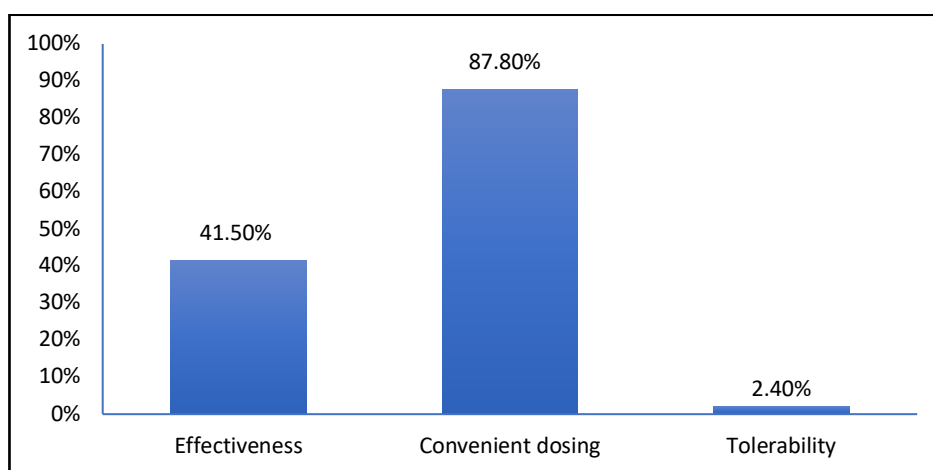


Figure 2- Secnidazole preferred over metronidazole, tinidazole and ornidazole

As per the physician's response, secnidazole was good to excellent in effectiveness 97.6% as well as tolerability 97.6% in treatment of periodontitis (Figure 3).

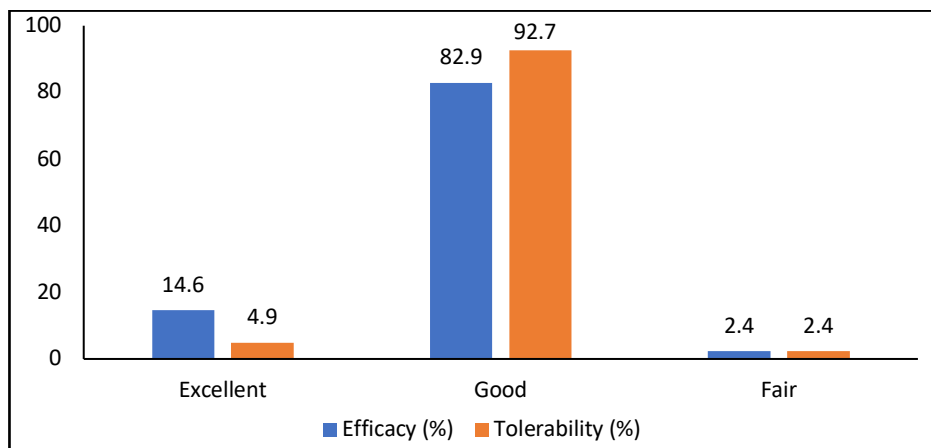


Figure 3- Effectiveness and tolerability of secnidazole in periodontitis

DISCUSSION

This questionnaire-based survey presented here collected physician's response for secnidazole treatment of dental infections which including forty-one responses. The result of this study can be useful to understand the off-label use of secnidazole in periodontitis. Generally, physicians prescribed antibacterial followed by antiprotozoal in dental infections practice. However, our survey showed that the use of secnidazole has often been used for treatment of periodontitis by majority of physicians in the Sri Lanka. It has been observed that periodontitis has various symptoms like, periodontal pus, inflammatory symptoms, and bleeding gums that increased the prescriptions of secnidazole.

In dental practice, most common antibiotic is amoxicillin followed by amoxicillin and clavulanic acid. Also, nitroimidazole class including metronidazole and tinidazole are recommended in treatment of dental infections [6]. Metronidazole can be used in association with amoxicillin and spiramycin to treat periodontal infections and it is prescribed with a dosage of 500–750 mg every 8 hours. But it may also result in serious side effects, such as seizures, anesthesia, or paresthesia of the limbs in certain patients. Also, there might be risk of resistance increased if penicillin is administered with metronidazole [5,6]. There is high resistance to antimicrobial such as, cephalosporins, metronidazole, penicillin, erythromycin, clindamycin, ciprofloxacin, rifampicin, amoxicillin, and amoxicillin-clavulanic acid in treatment of oral cavity infections [7]. However, secnidazole is structurally related to metronidazole and it has not been considered till date in treatment of stomatologic infections in association with macrolide family. Although, it is prescribed with a dosage of 2gm for once daily that can also be lowered the concomitant administration of spiramycin to 1 day instead of 3 to 4 days of present treatment of periodontitis [5]. Adjunctive use of secnidazole or proanthocyanidins in combination with scaling and root planning in adults with periodontitis is effective in reducing the pathogenic flora and achieves significantly better clinical results to a certain degree [8].

Since, half-life of secnidazole in blood and gingival crevicular fluid are more than two times of metronidazole and tinidazole that can lead to greater clinical benefits than metronidazole and tinidazole [9]. Our survey suggests that secnidazole 2gm is more convenient treatment in once daily over metronidazole, tinidazole and ornidazole and that is more likely to be properly followed rather than treatment of 3 to 4 days. As per this study, physician's preference is there

for secnidazole over metronidazole, tinidazole and ornidazole due to its convenient dosing, effectiveness, and tolerability.

CONCLUSION

Our findings suggest that secnidazole 2gm single dose was found effective and tolerable in the treatment of periodontitis. It is preferred over the other nitroimidazole drugs like metronidazole, tinidazole and ornidazole for its convenient dosing. This survey observed that, physicians were in favor of secnidazole for treatment of periodontitis. Further investigation is required before in-depth conclusions can be drawn.

LIMITATIONS

Our survey has a limitation, we had conducted this survey in person and physicians was less available due their time restriction for meetings. Hence, the number of physicians that fully filled-out the questionnaire was lower than expected sample size. The sample size of the survey is smaller which may impact on statistical analysis of the study.

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