

学 位 論 文 の 要 旨

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学 位 論 文 名 Comparison of Oral Health-Related Quality of Life Among Endodontic Patients With Irreversible Pulpitis and Pulp Necrosis Using the Oral Health-Related Endodontic Patient's Quality of Life Scale

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論 文 内 容 の 要 旨

INTRODUCTION

Endodontic treatment can maintain tooth integrity and avoid the need for extraction. The short- and long-term consequences of endodontic treatment on patient satisfaction and quality of life (QoL) should be considered, given the increasing demand for endodontic treatment. Irreversible pulpitis and pulp necrosis are two types of pulp disorders that require endodontic interventions. Irreversible pulpitis is characterized by intense inflammation and severe symptoms, including prolonged and exacerbated discomfort. Symptomatic irreversible pulpitis is a significant pain-related problem that negatively impacts oral health-related QoL (OHRQoL). The intensity of pain in patients with pulp necrosis varies from mild to moderate to severe, depending on the extent of the injury, accompanied by swelling and discomfort while chewing caused by compression of the nerve root at the base of the tooth. However, few studies have compared the effects of endodontic treatment on these two pulp diseases in terms of QoL. The newly developed Oral Health-Related Endodontic patient's Quality of Life (OHQE) has been verified as a reliable and valid scale and can be used to measure the OHRQoL in endodontic patients. Therefore, this study aimed to evaluate and compare the OHRQoL in patients with irreversible pulpitis and pulp necrosis using a recently established OHQE scale.

MATERIALS AND METHODS

Patients

The amount of 131 patients completed endodontic treatment, including the required follow-up. Of these patients, 62 had irreversible pulpitis, and 69 had pulp necrosis. We collected background data, medical history data, and dental history data. A comprehensive dental examination was conducted on every individual to collect information regarding the overall tooth count, denture usage, grade of caries and periodontal disease, frequency of daily brushing, and

visual analogue scale (VAS) pain score. The study protocol was approved by the Ethics Committee of Universitas Muslim Indonesia and Ibnu Sina Hospital (Approval number: UMI012206265).

Diagnosis

The present study used the evaluation protocols recommended by the American Association of Endodontists to establish an endodontic diagnosis. Irreversible pulpitis is diagnosed when both subjective and objective evidence confirms that the inflamed pulp cannot heal and that endodontic treatment is necessary. Pulp necrosis is a clinical diagnosis that refers to the death of the tooth pulp. Such pulp does not show any response to pulp testing and does not exhibit any symptoms.

Endodontic treatment

The endodontic treatment for all patients in this study was performed by endodontic residents of the Faculty of Dentistry at Hasanuddin University Dental Hospital. At every step of the procedure, the endodontic treatment follows standardized protocols and is supervised by a senior endodontist supervisor. Thus, all patients in this study received endodontic treatment of relatively similar quality. All endodontic treatments were conducted in teeth with single and multiple canals, both maxillary and mandibular, during multiple visits.

Questionnaire

The 37-item OHQE scale was used to conduct three surveys: before the initiation of endodontic treatment, after the completion of the treatment (including root canal obturation and temporary restoration), and two weeks later for a follow-up evaluation.

Statistical analysis

The Mann–Whitney U and chi-square tests were used to compare baseline data between patients with irreversible pulpitis and those with pulp necrosis. A mixed-effects model was used to analyze the intervention effects, with the effect of time as a fixed effect and the two diseases as random effects. The Mann–Whitney U test was used to evaluate the difference in the mean score for each item of the OHQE scale before and after endodontic treatment between both diseases. A two-tailed *p*-value was computed for each analysis. Significance was set at $p < 0.05$.

RESULTS AND DISCUSSION

Indonesia has a heterogeneous treatment environment: high-quality care is generally obtained in metropolitan areas, whereas the number of medical facilities in rural areas is limited. Maintenance costs also vary between urban and rural areas, with urban areas generally being more expensive. The data used in this study were collected from urban areas and therefore our findings may not be applicable to all endodontic patients. However, these results are likely similar to those of endodontic patients in developed countries. Irreversible pulpitis is characterized by severe, persistent, and referred pain. In contrast, pulp necrosis is a condition in which the nerve tissue of the tooth has undergone necrosis. Endodontists often ignore the clinical manifestations experienced by patients with these two pulp diseases and then perform endodontic treatment

without considering the patient's QoL. Therefore, the comparison made in this study is considered valid, and the results are meaningful.

Our results suggested that the response of QoL improvement on the physical and psychological subscales after endodontic treatment was higher for patients with irreversible pulpitis than for those with pulp necrosis. However, outcome parameters on the expectation parameters for endodontic treatment did not differ over time, between groups, or show interactions. The treatment of irreversible pulpitis did not change patients' expectations, possibly due to the lack of explanation by endodontists about the need, importance, and outcome of such treatment. Lack of communication between the dentist and the patient can lead to the patient lacking comprehension of the plan and treatment options. Additionally, it is caused by a lack of awareness among dental healthcare providers, such as dentists and dental hygienists, of the importance of informed consent. This lack of awareness and the lack of patient education regarding care will result in patients' distrust of dental providers and patients' expectations of endodontic treatment. Pulp necrosis is an advanced form of irreversible pulpitis, it is plausible that the OHQE scores were lower in this group than in the irreversible pulpitis group at all time points. Therefore, although endodontic treatment methods for pulp necrosis do not differ significantly, attention should be paid equally to patients with or without symptoms, and treatment explanations and informed consent should be provided to meet patient expectations for endodontic treatment.

It is important to provide effective questions to endodontic patients, as well as shorten the duration of the endodontic treatment. The digestive health and sense of taste issues found in this study are concerns that should be addressed by the endodontist before treatment, as both of these can be associated with decreased appetite. Both groups may experience a reduction in appetite because of pain symptoms that cause distress during digestion and tasting. Therefore, endodontists should focus on monitoring the dietary intake of patients with irreversible pulpitis and pulp necrosis to preserve the patient's digestive health. Furthermore, endodontists also need to pay attention to patient expectations regarding pain reduction after endodontic treatment. The high expectations of patients with irreversible pulpitis in this study may stem from the fact that they endured severe pain before treatment and achieved instant post-treatment pain relief.

CONCLUSION

In conclusion, we found no significant difference in QoL enhancement by endodontic treatment between the two pulp diseases. The physical and psychological subscale scores of the OHQE of each group improved over time. Conversely, patients' expectations remained unchanged after endodontic treatment. These results indicated that patients continue to lack comprehension of the importance of the endodontic treatment that they have been receiving. Hence, dental providers, particularly endodontists, should contemplate elucidating the significance of endodontic treatment for patients and address the factors that enhance patient expectations.