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**PREVALENCE OF DISEASE IN THE CONSERVATIVE DENTISTRY DEPARTMENT  
OF GUSTI HASAN AMAN DENTAL HOSPITAL BANJARMASIN IN 2015-2018  
(RETROSPECTIVE STUDY)**

**Sherli Diana<sup>1</sup>, Isyana Erlita<sup>2</sup>**

<sup>1</sup> Department of Conservative Dentistry Faculty of Dentistry Lambung Mangkurat University, Banjarmasin – Indonesia

<sup>2</sup> Department of Conservative Dentistry Faculty of Dentistry Lambung Mangkurat University, Banjarmasin – Indonesia

**ABSTRACT**

**Background:** The most common disease in society is dental problems. People often care less about oral health. Dental hard tissue disease is considered as a mild disease, not contagious and not life-threatening, so people will visit the dentist if they feel disturbed, especially in terms of mastication, swallowing and speaking. Dental hard tissue diseases in conservative dentistry that often causes problems are reversible pulpitis, irreversible pulpitis, and pulp necrosis. Until now, there are no definitive data on the prevalence of dental hard tissue disease in conservative dentistry in Indonesia, as well as data on the prevalence of dental hard tissue disease in Banjarmasin, South Kalimantan. **Purpose:** To find out the prevalence of hard tissue disease in conservative dentistry in patients who came to Gusti Hasan Aman Dental Hospital, Banjarmasin, South Kalimantan in 2015-2018. **Methods:** This research was a descriptive study through a retrospective study. Samples in this study were taken by purposive sampling method, totaling 11,480 medical records of patients who came to the Conservative Dentistry Department at Gusti Hasan Aman Dental Hospital Banjarmasin in 2015-2018. **Results:** The data obtained showed the prevalence of reversible pulpitis as many as 6,700 (59%), irreversible pulpitis as many as 1,291 (11%), pulp necrosis of 3,234 people (28%), and others as many as 255 people (2%). **Conclusion:** The highest prevalence of dental hard tissue disease in the Conservative Dentistry Department of Gusti Hasan Aman Dental Hospital in 2015-2018 is reversible pulpitis, followed by pulp necrosis, and irreversible pulpitis.

**Keywords:** *Necrosis, Prevalence, Pulpitis,.*

**Correspondence:** Sherli Diana, Dentistry Study Program, Faculty of Dentistry, Lambung Mangkurat University, Jl. Veteran No.128B, Banjarmasin, South Kalimantan, Email: [sherlidiana87@gmail.com](mailto:sherlidiana87@gmail.com)

**INTRODUCTION**

The most common disease in society is dental problems. People often care less about oral health. Dental hard tissue disease is considered a mild disease, not contagious and not life-threatening. The community will visit the dentist if the patient feels disturbed, especially in terms of mastication, swallowing, and speaking.<sup>1</sup> The thing that affects dental hard tissue disease is the education and economic factors of the community, which influence the knowledge, attitudes, and behavior of a healthy lifestyle. Economic aspects can be seen from the slums and inland areas. The social aspect can be seen from the lack of socialization about oral health.<sup>2</sup>

Other external factors that influenced are the culture of the community, as well as people's ignorance of oral health. Cultural aspects, such as oral health, are still influenced by cultures inherent in society. Cultural aspects, such as oral health, are still influenced by cultures inherent in the community, for example the betel culture. In terms of science, there are still many people who do not know the importance of maintaining oral health, so they know the impact that arises when they do not maintain oral health.<sup>2</sup>

Dental hard tissue diseases in conservative dentistry that often cause problems are reversible pulpitis, irreversible pulpitis, tooth necrosis, and

odontogenic abscess.<sup>3</sup> The right treatment starts with the right diagnosis. Appropriate diagnosis requires knowledge (knowledge about disease and its symptoms), skills (skills to do the right way to test), and art (the art of expressing impressions). Proper diagnosis needs to be based on medical history, clinical examination, laboratory, and radiology tests.<sup>4</sup>

Common complaints that often occur in conservative dentistry are stabbing-like pain, spontaneous pain, and extreme pain, both local and general. Pain in the teeth if left without treatment can lead to focal infections and abscesses. Management of dental hard tissue disease in the conservative dentistry is restoration, endodontic treatment, and pulpotomy.<sup>5</sup>

Until now, there is no definitive data on the prevalence of dental hard tissue disease in conservative dentistry department in Indonesia, as well as data on the prevalence in Banjarmasin, South Kalimantan. This study aims to determine the prevalence of dental hard tissue disease in conservative dentistry department in patients who come to the Gusti Hasan Aman Dental Hospital, Banjarmasin, South Kalimantan.

## METHODS

This study was approved by the ethics commission of the Faculty of Dentistry, Lambung Mangkurat University with No. 189 / KEPKG-FKGULM / EC / V / 2019. This type of research was descriptive research through a retrospective study. The population in this study were all medical records of patients who came to the conservative dentistry section at the Gusti Hasan Aman Dental Hospital in 2015-2018. Inclusion criteria: medical records in patients undergoing treatment until recovery. Exclusion criteria: patients do not control routinely. Determination of research subjects was done by the Purposive Sampling method, which was all medical records of patients who fit the inclusion and exclusion criteria.

This research was conducted in the conservative dentistry section of Gusti Hasan Aman Dental Hospital Banjarmasin in June - September 2019. The research used tools in the form of a pencil, ruler and camera. The researcher examined all patient medical records from 2015-2018, then selected patients who carried out the treatment to completion and carried out the controls appropriately. All data collected was derived from the final diagnosis, then performed calculations and tabulations. Data obtained in this study were presented in tabular and graphical form.

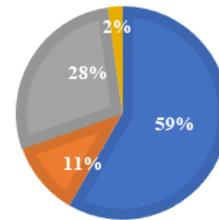
## RESULTS

The results showed that in the conservative dentistry section of Gusti Hasan Aman Dental Hospital in 2015 - 2018, patients who visited filled the sample of 11,480 people. The prevalence of the disease showed that patients with reversible pulpitis were 6,700 (59%), irreversible pulpitis were 1,291 (11%), pulp necrosis were 3,234 people (28%), and others were 255 people (2%). This can be seen in table 1 and figure 1.

**Table 1.** Prevalence of Dental Hard Tissue Disease in the Conservative Dentistry Section of Gusti Hasan Aman Dental Hospital in 2015 - 2018

Diagnose	Total	Percentage
Reversible pulpitis	6.700	<b>59%</b>
Irreversible pulpitis	1.291	<b>11%</b>
Pulp necrosis	3.234	<b>28%</b>
Others	255	<b>2%</b>

■ Reversible pulpitis ■ Irreversible pulpitis  
■ Pulp necrosis ■ Others



**Figure 1.** Prevalence of Dental Hard Tissue Disease in the Conservative Dentistry Section of Gusti Hasan Aman Dental Hospital in 2015 – 2018

## DISCUSSION

The results showed the highest prevalence of dental hard tissue disease in the conservative dentistry section of Gusti Hasan Aman Dental Hospital in 2015 – 2018 was reversible pulpitis as many as 59%. This is different from research conducted by de Oliveira BP et al (2016) which stated that the highest prevalence of caries based on endodontic diagnosis is symptomatic irreversible pulpitis, which is 46.3% of 1346 cases, followed by pulp necrosis of 33.2%, irreversible pulpitis asymptomatic 14.6%, and reversible pulpitis 2%.<sup>6</sup> The prevalence of caries in Indonesia is 88.8%.<sup>7</sup>

Initially, the disease process in the pulp begins with reversible pulpitis. Reversible pulpitis is a mild inflammation and can be cured by eliminating irritation stimulus.<sup>8</sup>

The etiology of reversible pulpitis is dental caries. Dental caries is an infectious disease that comes from the penetration of oral bacteria into the enamel and dentin. Microorganisms will trigger an inflammatory response in the pulp. The pulp can heal if the infection is not severe and immediate treatment is taken by removing the enamel and dentin infected tissue and then restoring the teeth.<sup>9</sup> According to the American Association of Endodontists, reversible pulpitis is inflammation of the pulp, when inflammation is removed the pulp can return to normal.<sup>10</sup>

Reversible pulpitis is characterized by non-spontaneous pain, a sensitive response to cold and heat tests when compared to healthy teeth as a control, and no more than 30 seconds the pain that appears will subside after the stimulus is removed.<sup>11</sup> The treatment for reversible pulpitis is pulp capping. The pulp capping materials are MTA, calcium hydroxide, and biodentin.<sup>12</sup>

From the results of this study, the second highest prevalence was pulp necrosis as much as 28%. The prevalence of pulp necrosis in some countries is quite high. The causes of pulp necrosis are caries and non caries (fracture). This can occur because of deep caries and no immediate restoration. Pulp necrosis is pulp that is dead, does not respond to stimuli and is asymptomatic.<sup>10</sup>

The etiology of pulp necrosis is microbial invasion through the protective layer of teeth, enamel, cementum and dentin to the pulp. Other pathways for microbial invasion are leaky restorations, exposed dentine, trauma, cracks, and lateral canals. Microbial invasion into the pulp is mostly caused by inflammation and infection. Pulp inflammation begins before bacterial antigens are released from the carious lesion through the dentinal tubules to the pulp. These antigens are recognized by the pulp defense system. Initially, it will be recognized by antigen dendritic cells, followed by the immune system and inflammatory cells.<sup>13</sup> Infection begins when bacterial cells enter the pulp. If no treatment is performed, caries and bacterial invasion cause pulp inflammation, infection, and finally necrosis and apical periodontitis.<sup>5</sup> The management of pulp necrosis is to eliminate the causative factor, namely root canal treatment if the tooth can still be restored, but if the tooth cannot be restored, the tooth is extracted.<sup>10</sup>

The third highest prevalence is irreversible pulpitis as much as 11%, with the most cases being symptomatic. Irreversible pulpitis is a continuation of reversible pulpitis that is not treated or failed treatment.<sup>8</sup>

The etiology of irreversible pulpitis is dental caries. This dental caries approaches the pulp or have

reached the pulp, causing symptoms of irreversible pulpitis.<sup>10</sup> The cause of irreversible pulpitis is acute pulp inflammation. This can cause vasodilation, increased vascular permeability, and leukocyte leakage, because the pulp cannot expand and there is a significant increase in inflammation in internal tissue pressure.<sup>14</sup> Symptoms arising from irreversible pulpitis are spontaneous pain with moderate to severe intensity, which can cause the patient to be unable to sleep.<sup>8</sup> Symptomatic irreversible pulpitis is characterized by the presence of deep caries which causes the pulp to be exposed when caries is removed.<sup>10</sup>

The irreversible pulpitis treatment plan is endodontic treatment for pain relief. Pain control can be done with intrapulp anesthesia and pain-relieving drugs.<sup>14</sup>

The prevalence of infectious diseases in the conservative dentistry section at Gusti Hasan Aman Dental Hospital Banjarmasin is quite high, that is reversible pulpitis as much as 59% and pulp necrosis as much as 28%. This might be due to the lack of motivation, knowledge, and dental and oral health behavior of the Banjarmasin community. Based on this, it is necessary to have dental health education, counseling efforts regarding oral health, as well as knowledge and motivation from the dentist to the community so that if there are cavities, treatment can be immediately carried out. Counseling is an effort to increase public knowledge and awareness in improving oral health. Through counseling programs, the community is expected to increase knowledge and awareness so that they can participate actively in improving health status.<sup>7</sup>

Patients with acute pulp inflammation, such as reversible pulpitis, irreversible pulpitis, and pulp necrosis, are educated to carry out holistic, comprehensive, integrated, and continuing dental care, and regularly make regular visits to the dentist.<sup>7</sup> The conclusion of this study is the highest prevalence of dental hard tissue disease in the Conservative Dentistry Department of Gusti Hasan Aman Dental Hospital in 2015 - 2018 is reversible pulpitis, followed by pulp necrosis, and irreversible pulpitis.

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