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EFFORTS TO PREVENT CROSS-INFECTION IN THE DENTAL CLINIC DURING THE COVID 19 PANDEMIC AT THE PATEK HEALTH CENTER, ACEH JAYA REGENCY

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Abstract

In the context of healthcare, the principle of prevention plays an important role in minimizing the risk of infection. Infections can be caused by various factors, including accidents such as being pricked by sharp instruments, contamination from unsterilized hands, or respiratory transmission. Therefore, infection control becomes a key strategy for dentists to avoid the risk of cross-infection that could potentially harm patients and medical staff. The role of dental nurses in avoiding or preventing cross-infection cannot be ignored, especially in pandemic situations such as Covid-19. Sterilization of dental medical devices is a crucial step that must be carried out appropriately and correctly to ensure the safety of patients and medical staff. This study aims to explore the understanding of ways to prevent cross-infection during the Covid-19 pandemic, especially in the context of the dental clinic at the Patek Health Center, Aceh Jaya Regency. The research method used was an analytic survey with a cross-sectional study approach, where data were collected simultaneously at one point in time. The study population consisted of two dental nurses and patients visiting the dental clinic. The sample taken was the total population available. Data collection was carried out using a questionnaire to measure the level of knowledge and a checklist sheet to record the actions taken.

Keywords: Prevention, Cross Infection, Dental Nurse, Covid 19

1. INTRODUCTION

Oral health services are actions that are at risk of exposure to patient body fluids. Health workers who handle dental and oral areas routinely experience repeated exposure to microorganisms present in blood and saliva. Dental health care facilities are required to provide health safety guarantees for both health workers and the community served. Dental and oral health care workers in Indonesia have an obligation to always fulfill one of the criteria for standard dental services in Indonesia, namely implementing Infection Prevention and Control.

The 2018 Basic Health Research noted that the proportion of dental and oral problems in Indonesia was 57.6%, and those who received services from dental medical personnel were 10.2%. In 2013, people in Indonesia who received dental extraction services amounted to 79.6%. Cross-infection is the transfer of microorganisms that can occur in dental health services through several ways, including from patients to dental health service personnel, dental health service personnel to patients, patients to patients, and dental health services in the community.

Efforts to prevent the spread of infection from person to person or from equipment to person can be done by placing barriers between microorganisms and individuals (patients or health workers). This barrier can be in the form of physical, mechanical, or chemical efforts which include hand washing, use of gloves, use of antiseptic liquids to clean wounds on the skin, processing of used equipment, and waste disposal.

An initial survey conducted at the Patek Health Center in Aceh Jaya from a dental nurse who was interviewed about cross-infection prevention efforts in the dental clinic understood the correct prevention methods. From the data from these interviews and observations, this study aims to determine efforts to prevent and control cross-infection in the dental clinic of the patek aceh jaya health center, with the formulation of the problem "How do dental nurses know efforts to prevent cross-infection in the dental clinic during the covid19 pandemic at the patek aceh jaya health center.

2. RESEARCH METHOD

This type of research is an analytic survey with a Cross Sectional Study approach. To find out the prevention of cross-infection, which was carried out on March 14, 2022, at 1 dental clinic patek health center aceh jaya. The variables in this study consisted of Independent Variables, namely the knowledge of dental nurses about the method of cross-infection prevention efforts is an effort to prevent and minimize the occurrence of infections in patients, officers, visitors, and the community around health care facilities. Everything that the respondent knows about cross-infection prevention efforts is measured using a validated questionnaire consisting of 10 questions with correct and incorrect categories, the correct category is given a score of 1, and incorrect is given a score of 0. Determination of good and less good is done by scoring from 8-10 good, while 1-7 is less good.

From the results of this summation, knowledge can be categorized: a. Good: 8-10 ,b. Less good : 1-7. The Dependent Variable is Cross-infection Prevention Action measured by using a check list format that has been compiled, the author observes the activities of the cross-infection prevention process carried out by dental nurses and assesses by filling out a checklist format consisting of 10 statements. Assessment with the Checklist format is categorized into agree, disagree, and disagree. The researcher gave a check mark on the list when the dental nurse was handling the patient. The score is determined by the number of statements performed correctly by the dental nurse.

The population in the study was a dental nurse and patients who visited the dental clinic. The sample in this study was the total population, namely by taking the entire population at the research site.

3. RESULT AND DISCUSSION

3.1. Result Research

A. Characterization of Research Subjects

Table 1. Frequency Distribution of Patient Characteristics

Gender Type	F	%
Male	7	46.7 %
Female	8	53.3 %
Total	15	100.0 %

Based on table 1, the frequency distribution of the characteristics of the respondents, it is known that in the characteristics of the respondents, the majority of respondents were male, namely 7 people (46.7%) and the majority were female, namely 8 people (53.3%).

Table 2. Frequency Distribution of Dental Nurse Characteristics

Gender type	F	%
Female	2	100.0 %

Based on Table 2, the frequency distribution of the characteristics of dental nurses shows that the gender of the majority is female, namely 2 people (100.0%).

Table 3. Frequency Distribution of Patient Characteristics

Age	F	%
Children	8	53.3 %
Youth	7	46.7 %
Total	15	100.0 %

Based on table 3 the distribution of patient characteristics of age is the majority in CHILDREN, namely 8 people (53.3%) and in adolescence, namely 7 people (46.7%).

Table 4. Frequency Distribution Of Dental Nurse Characteristics

Age	F	%
Adult	3	100.0 %

Based on table 4 The distribution of the characteristics of dental nurses of majority age in adulthood is 2 people (100.0%).

B. Description of Research Variables

Table 5. Patients' Level of Knowledge on Prevention of Cross-Infection in the Dental Clinic

Knowledge	Gender type				total	%	*P value*
	female	%	Male	%			
Good	4	26.7%	4	26.7%	8	53.3%	0.782
Not good	4	26.7%	3	20.0%	7	46.7%	
total	8	53.3%	7	46.7%	15	100.0%	

Based on Table 5. Shows that of the 15 patients sampled, the majority of women who have good knowledge are 4 people (26.7%) where the majority of men have good knowledge as many as 4 people (26.7%), while for poor knowledge in the majority of women are 4 people (26.7%) and for the majority of men, poor knowledge is 3 people (20.0%).

Table 6. The Level of Knowledge of Dental Nurses on the Prevention of Cross-Infection in the Dental Clinic

Knowledge	Gender type		Total	%	*P Value*
	Female	%			
Good	2	100.0 %	2	100.0 %	
Total	2	100.0 %	2	100.0 %	

Based on Table 6, it shows that of the 2 dental nurses sampled, the majority of women who have good knowledge are 2 people (100.0%).

3.2. Discussion

Globally, many countries have been severely affected by the COVID-19 virus. This pandemic will have both social and economic impacts. Indonesia must be prepared to deal with this condition, especially in the existing health system. Health services are the spearhead in handling COVID-19. The capacity of the health system in Indonesia is still below the capacity to handle the COVID19 pandemic. Efforts that can be made by health facilities include strengthening the health system to ensure that hospitals have good capabilities in handling patients, utilizing online networks for online treatment, utilizing telemedicine systems, preparing health sector emergency funds to minimize health financing, and last but not least, the human resources who handle this case (Mulyanti & Putri, 2011).

Doctors and other health workers are at the forefront of direct contact with patients and have a high risk of exposure to the virus (Emril, 2020). Hospitals need efforts to foster Hospital Occupational Safety and Health (K3RS). The strategy for preventing occupational accidents and infection control implemented by health workers is to emphasize personal protective equipment (PPE) (Apriluana et al., 2016).

Dentists are considered to have a high risk of transmission of COVID-19 and nosocomial infections. This is because the patient's contact with the dentist is quite close during treatment, namely the oropharyngeal area so that exposure to saliva, blood and aerosols produced by the roraty instrument and ultrasonic handpiece is a source of infection transmission. During the COVID-19 pandemic, dentists in various countries were advised to delay treatment to avoid transmission of COVID-19. Treatment is only carried out in emergency cases such as: unbearable pain, swollen gums due to infection, uncontrolled bleeding and trauma to the teeth and facial bones due to accidents (Sonny, 2019). Treatment procedures should pay attention to several aspects such as: individual risk assessment, patient triage, and measures to prevent infection of dentists or patients through the use of appropriate PPE (Gurzawska-Comis et al., 2020).

Personal protective equipment (PPE) plays an important role in protecting dentists and preventing cross-infection. Knowledge of the proper use of PPE including donning and doffing is very important to ensure the safety of dentists and health workers. Errors in donning and doffing can lead to the potential for dentists to come into contact with pathogens (Bains et al, 2021). Research (Phan et al, 2019) evaluated the use of PPE and proper doffing methods in health workers. The results showed that 90% of health workers still made mistakes in the doffing procedure. Errors that often occur include when removing the gown from the front, removing the face shield or mask and touching potentially contaminated PPE surfaces during doffing.

Recommendations for personal protective equipment (PPE) for dentists and dental nurses are level 3 PPE because the actions of dentists are classified as actions that cause the spread of droplets and aerosols, based on the duties and functions in the dentist's office PPE level according to (PB PDGI COVID-19 Handling Task Force, 2020) consists of assistants in the waiting room at least level 1 PPE, janitors at least level 2 PPE, assistants in the dental unit room at least level 3 PPE, and level 3 PPE dentists.

PPE that is recommended for dentists to use in practice is level 3 PPE which is composed of eye protection in the form of googles or face shield, head cover / headcap, N95 mask or equivalent, surgical scrub, gown all cover, apron, double sterile gloves, and boots. Eye protection in the form of googles or face shields that serves to protect the mucous membrane from exposure to droplets or aerosols that arise when performing oral dental care actions. Protection of the mucous membranes of the eyes, nose, and mouth is a standard of handling patients who have infections with spread through droplets. The googles used should have a good seal against facial skin, a flexible frame that can cover the entire contour of the face without pressing too deeply, can cover the entire eye and surrounding area, are resistant to dew or scratch formation, have a head strap that can be adjusted to each size, and can be used repeatedly after disinfection procedures (PB PDGI COVID-19 Handling Task Force, 2020).

Face shields should be made of translucent plastic to provide good visibility for health workers and patients, have adjustable head straps, preferably resistant to dew formation, and can be reused after disinfection or disposable (PB PDGI COVID-19 Handling Task Force, 2020). The headcap should cover the head and neck and should be separate from the gown to protect the skin, head and neck hair from virus contamination and possible virus transmission. The headcap should be water resistant to prevent exposure to salivary droplets or aerosols (PB PDGI COVID-19 Task Force, 2020).

Surgical scrubs, gown all covers and aprons as PPE that covers the entire garment should be used once. Emergency conditions that require repeated use of surgical scrubs, gown all covers and aprons can be disinfected. Gowns should be made with materials that are resistant to the penetration of blood or other body fluids containing pathogens. Aprons are used to cover the gown so as to reduce the risk of exposure from the patient when vomiting or splashing droplets or aerosols (PB PDGI COVID19 Handling Task Force, 2020). Disposable double sterile gloves can use ordinary double gloves or latex surgical gloves to avoid the risk of transmitting the virus to health workers due to perforation or damage to gloves when performing dental and oral actions. Gloves made from nitrile or latex are recommended. The use of the second (outermost) glove should reach the middle of the forearm (at least 28 cm from the length of the hand) (PB PDGI COVID-19 Handling Task Force, 2020).

In addition to the use of standard PPE, consideration of the selection of dental instruments can also be made to reduce the risk of transmission of infection, including using anti-retraction handpieces to reduce exposure to debris and fluids, applying the principle of four handed dentistry to reduce the risk of spreading the virus in the dental unit, using rubber dams and selecting cannulas with large volumes for aspiration (Villani et al, 2020). The use of antiseptic mouthwash before dental and oral examination procedures for each patient is one of the efforts to prevent the spread of the COVID-19 virus. Mouthwash containing Povidone-Iodine 1% has been shown to reduce the virus in vitro by 99.9% within 30 seconds. The use of mouthwash containing 0.5%-1% hydrogen peroxide for 1 minute has also proven effective against the COVID-19 virus (Farahanny et al., 2020).

Installation room control is also an important part of overall infection control. The use of air conditioning equipment needs to pay attention to the direction of the wind issued so that it leads from the dentist towards the patient and towards the area where the air hole ventilator is installed so that it helps remove air. Cleaning of the room and equipment is done after every patient examination. Disinfection of all contact surfaces should be cleaned with an intermediate or low level disinfectant such as 70-90% alcohol, 5.25% sodium hypochlorite, phenolic detergent or iodophor detergent. It is recommended to always re-coat contact surfaces with plastic wrap after every patient exchange. This aims to ensure that at every stage of work there is no cross-infection contamination from patients to medical personnel, namely dentists and dental nurses who perform oral medicine services (Farahanny et al., 2020).

4. CONCLUSION

Dentists are one of the professions that have a high risk of transmission of COVID-19 infection. This is because dentists work in the patient's oropharyngeal area which produces a lot of infectious aerosols. The existence of this risk requires dentists to make adequate self-protection efforts using level 3 PPE so that the transmission of COVID-19 and cross-infection in dental practices can be prevented. Understanding donning and doffing procedures, adequate disinfection procedures and control of the practice room are also important factors that need to be considered by dentists during a pandemic.

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