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THE INFLUENCE OF PROPOLIS ON HEALING PROCESS ATPATIENTS WITH PULMONARY TUBERCULOSISDESEASEON WONOAYU, KREMBUNG, AND PRAMBON AREA IN SIDOARJO DISTRICT

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ABSTRACT

Tuberculosis is a lung disease that is common in developing countries. This disease is difficult to eradicate because this disease is a contagious disease and the healing process that takes a long time. Treatment of TB in Indonesia have followed the advice of the WHO, through DOTS programs and the failure of the treatment is quite high which led to an increasing in the number of patients with tuberculosis.Treatment failure can be caused by various factors, one of which is resistance to Anti-Tuberculosis Drug. Propolisis ana turalimmuno modulator activity are known to have antimicrobial, antifungal, antiviral, antioxidant, antitumor, anti-inflammatory, antithrom boticand improve there generativeability. The purpose of the study is to determine the effect of propolis on the healing process at patients with pulmonary tuberculosisin PHCW onoayu, Krembung, and Prambon area in Sidoarjo district. Design of the study is quasi experiment with approaches comparison between control and treatment groups. Respondents from Acid-Resistant Bacteria positive beex aminated and divided into control and treatment groups. In the treatment group will be given Propolis for 1 month of treatment 2 times a day 5 drops each day. Then be compared with the healing process Acid-Resistant Bacteria be examined at 2 months after treatment. The results showed that there were significant differences between the control group and the treatment group and based on the Mann-Whitney statistical test showed that $p=0.029 < \alpha = 0.05$ so it can be concluded that the administration of propolis can help the healing process of pulmonary tuberculosis. Propolisas acomplementary therapy can be considered by the client and the nurse to reduce healing failure of TB especially treatment TB in the community

Keywords : Propolis, PulmonaryTuberculosis, Acid-Resistant Bacteria examination.

INTRODUCTION

Tuberculosis is an infectious disease directly caused by germs (Mycobacterium Tuberculosis). The majority of TB germs invade the lungs but it can also be about other body organs. Tuberculosis is a bacterial infection disease which is characterized by the formation of chronical granuloma on the network are infected. Mycobacterium tuberculosis is the aerobic germs can live mainly in lung or various other organs with high partial pressure. Tuberculosis disease usually attacks the lungs but

can spread to almost all parts of the body including the meninges, kidney, bone, lymph and lymph. The initial infection usually occurs 2-10 weeks after exposure. The individual can then experience the active disease because of interference or the efektifan immune response. Mycobakterium tuberculosis is bacterial aerobic acid-resistant stems that grow slowly and are sensitive to heat and Ultra Violet rays.Tuberculosis can occur anywhere in the body but mostly incurred as pulmonary parenkim network infections. Data for 2003 show that the WHO Indonesia is third largest contributor of tuberculosis cases in the world after India and China. Approximately 140,000 people of Indonesia who died each year of tuberculosis. The treatment of TB in Indonesia have been following advice from the WHO namely through DOTS (Directly ObserveTreatment Short Course), namely the use of OATS for at least 6 months to cure tuberculosis patients with supervision. But still the onset of treatment failure is quite high which lead to an increased number of tuberculosis sufferers. Treatment failure can be caused by a variety of factors, one of which is resistance to OAT. Resistance to OAT is primarily caused by erratic drug intake (especially the treatment of incomplete/interuptus) and treatment with just one anti-tuberculosis drugs only.

The various manifestations of the infection caused by Mycobacterium tuberculosis illustrate the existence of a balance between germs (m. Tuberculosis) and defense mechanism of the body host (host immunity) in which the body's defense mechanisms of the host determine the end results that can be caused. There is an important role of macrophages as executor of non-specific and specific T cell mediated in destroying the m. Tuberculosis. Phagocytosis, recognition by the immune system, the production of cytokines and mechanisme effector is the role of innate immunity. Macrophages activated by infection with m. Tuberculosis produces type 1 cytokines such as IL-12, IL-6, and IL-23. The secretion of IL-12 of themacrophage is the beginning of the regulation of the immune response proinflamatory cytokine, acts as that can stimulate the production of IFN-gamma by Th1 cells and NK cells that can enhance the activation of macrophages in the fight against infection of m. tuberculosis. The use of immunotherapy is an additional draw attention to tackle tuberculosis, mainly because of an increase in the percentage of sufferers who are resistant to anti tuberculosis medication. Imuno modulator is expected to be used to repair or rebuild (imuno restoration) of the immune system that is not perfect or dysfunction.

There are specific Imunomodulator and non-specific. Specific Imunomodulator e.g. monoclonal antibodies, whereas non e.g. vaccines BCG and Corynebacterium parvum, which has exploited secaraklinis. Non can enhance Imunomodulator macrophage response to infection due to the secretion of cytokines by T lymphocytes or limfokin, such as IFN-gamma and TNF-alpha. The weakness of the imunomodulator is required the presence of recurrent exposure to produce cytokines that are able to activate the macrophages cause without any recurring exposure within a certain period resulted in the body would not be found specific limfositT that secrete cytokines can activate macrophages. Based on the foregoing the imunomodulatorrequired high levels of availability so that it can be given a long period of recurring like imunomodulator derived from nature. Propolis is a natural imunomodulator example. Propolis bee glue is referred to as, is the substance resin, brownish-colored bees made by collecting the SAP of resin from the trees and then mix it with nectar and formed the substance of wax wax disarangnya. Propolis contains chemically complex which has a very rich variety of higher terpenes and benzoate, caffeat, cinnamat, phenolat acid and flavonoids which have many benefits. Caffeic Acid Phenetyl Esther (CAPE) that have activity as imunomodulator also contained therein. In some research, propolis is known to have antimicrobial activity, antifungal, antiviral, antioxidant, anti-tumor, anti inflammatory, anti trombotik and regenerative abilities but the literature that mention its effect on the immune response is still rare.

Propolis is a mixture of resin that is collected by honeybees from plant sources such as SAP flow or

buds of a tree. Collected by bees to cover the small holes, up to 6 millimeters, while for larger holes use the night bees. Its color depends on the source of the foliage, but is usually dark brown. Propolis are sticky on the room temperature or above (20 ° C). While if lower, will become hard and brittle.

Propolis is the resin into a dark green or brown with a sense of fun as poplar buds, honey, and vanilla candles but can also have a bitter taste. When burned, the aromatic resin smells wafted by strong (Nikolaev, 1978). Propolis chemical composition as well as color and aroma change according to the geographical zone. Its colour varies from yellowish green to dark brown depending on the source and age (Ghisalberti, 1979). This can be likened to an aromatic glue. Hard and brittle when cold, but be gentle and very sticky when warm. It's composition and physico-chemical investigation of propolis (Ivanov, 1980). Propolis contain β-amylase (Kaczmarek and Debowski, 1983), many compounds are polyphenols, flavonones, flavones, phenolic acids and esters (Bankova et al, 1982; Bankova et al, 1983; Bankova et al., 1988) and fatty acids (Polyakov et al., 1988).

Propolis contains some minerals such as Mg, Ca, I, K, Na, Cu, Zn, Mn and Fe as well as some vitamins such as B1, B2, B6, C and E, and a number of fatty acids. In addition, it contains some of the enzyme succinate dehydrogenase as, glucose-6-phosphatase, acid phosphatase and adenosine triphosphatase (Tikhonov and Mamontova, 1987). Propolis contains copper 26.5 kg manganese mg/40 mg/kg ash residue and contains iron, calcium, aluminium, vanadium, strontium, manganese and Silicon (Moreira, 1986).

Anti-bacterial activity of propolis much interest researchers for researching and discovering that propolis has antibacterial activityagainst gram-positive bacteria and Gram-negative strains and they found that propolis has antibacterial activity against a variety of Gram-positive rods but has limited activity against gram-negative bacilli (Grecianu and Enciu, 1976).

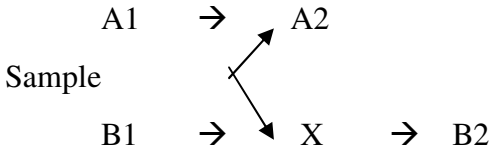
And Ugur Arslan (2004) found that the antimicrobial activity of propolis varies depending on the dose of propolis, propolis samples, and solvent extraction of propolis. Antimicrobial activity of propolis all the samples increased with increasing dose. The most sensitive microorganisms against Shigella sonnei propolis is in a group of gram-negative and Gram-positive Streptococcus mutanspada. The standard antibiotics used and the result showed that samples of propolis has an effect equal or greater inhibitory effect on s. mutans, Salmonella typhi, Pseudomonas aeruginosa, and s. sonnei.

Of ethanol extracts of propolis (EEP) effective against anaerobic bacteria. EEP shows the greatest effectiveness against strains bakteroid and Peptostreptococcus and a little less effective against gram-positive rods Propionibacterium, Eubacterium and Arachinia. The clostridium are the most sensitive to the EEP (Kedzia, 1986). Observed the antibacterial activity against a wide range of frequently encountered Gram positive coccus and rods except for Mycobacterium tuberculosis, but only limited activity against gram-negative bacilli (Grange and Davey,1990, Rojas Hernandez et al, 1993). Takasi et al (1994) stated that propolis to inhibit the growth ofbacteria by preventing cell division, resulting in the formation of multicellular pseudo-streptococci.

MATERIAL AND METHODS

The design of this research is to design a research Quasi alphabets experiment with the approach of a comparison between the treatment group and the control group. Respondents from the pulmonaryTuberculosis sufferers Bacteria Resistant Acid positive result was 20 people divided into a control group and a treatment group of 10 persons 10 persons. On the Group's treatment will be given Propolis for 1 month treatment first 2 times 5 drops every day. Then compared the process of healing with Acid Resistant Bacteria examination based on 2 months after treatment.

Framework Research



Description:

A1: the measurement of Acid-Resistant Bacteria control group

A2: the measurement of Bacteria Resistant to Cruiser control group

X: Treatment by administering Propolis

B1: measurement of Acid-Resistant Bacteria treatment group

B2: the measurement of Acid-Resistant Bacteria treatment group

RESULT AND DISCUSSION

The healing process based on the results of the examination of the Acid-Resistant Bacteria on 2 months of treatment in the control group.

From the results of research of pulmonary TB sufferers 10 who became a control group undergoing treatment after 2 months according to the standard public health examined the Acid-Resistant Bacteria with the result 4 Lung sufferers result Acid-Resistant Bacteria (+) and 6 person Lung Sufferers Acid-Resistant Bacteria (-), it is likely sufferers of Acid-Resistant Bacteria (+) due to the durability of the body of Pulmonary TB sufferers are not able to stop the progression of germs Mycrobacterium tuberculosis as a result concerned remains a Pulmonary TB sufferers (Bankova V , 1997). The durability of the body less able to sufferers can also be caused because the sufferer less appetite so that intake of nutrientsconsumed insufficient. The control group is not only given propolis allotment plus the standard treatment clinics of pulmonary TB sufferers but indeed experience a decreased appetite, otherwise plus the giving of good nutrition will result in a weak body endurance. Complaints of cough and congested almost all sufferers complain first treatment to 1 month of treatment later in the second month began reduced cough and shortness of breath.

The healing process based on the results of the examination of the Acid-Resistant Bacteria on 2 months treatment group treatment.

From the results of the study 10 sufferers undergoing treatment after treatment group 2 months standard Clinics plus a grant of propolis 2 times 5 drops every day for 1 month conducted the examination result is Acid-Resistant Bacteria 10 Lung sufferers Acid-Resistant Bacteria (-), it is likely due to the durability of the body of the sufferer is able to stop the progression of Mykobacterium tuberculosis germs. The durability of the body of the sufferer is able to stop the progression of the germ Mycobacterium tuberculosis diasebabkan regular treatment possibilities plus the granting of propolis propolis because it contains minerals such as Mg, Ca, I, K, Na, Cu, Zn, Mn and Fe as well as some vitamins such as B1, B2, B6, C and E, and a number of fatty acids. In addition, it contains some of the enzyme succinate dehydrogenase as, glucose-6-phosphatase, acid phosphatase and adenosine triphosphatase (Tikhonov andMamontova, 1987). Propolis contains

copper 26.5 kg manganese mg/40 mg/kg ash residue and contains iron, calcium, aluminium, vanadium, strontium, manganese and Silicon (Moreira, 1986). Propolis has antibacterial activity against gram-positive bacteria (Grecianu and Enciu, 1976).

Granting of propolis will form a ligand bonds to spur the formation of IRAQ'S complex TLR-1/Iraq-4. IRAQ-1 complex activates the kinase protein complex is NOT-1, activation of the kinase and localization of nucleus transcription factors NFk-β to produce IFN-γ, IL-12. The main effect of signals the activation of transcription factors is TLR NFk-β which is required for the expression of many genes and related to immunity and inflammation of the flesh.

On the Group's treatment, the treatment group of 10 sufferers examined smear after treatment 2 months plus a grant of propolis 2 times 5 drops every day get the show results entirely Acid-Resistant Bacteria (-). This is likely due to the additional grant of propolis propolis which could improve the durability of Pulmonary TB sufferer's body because of the content of propolis there minenal and vitamins for pulmonary TB sufferers. In addition to minerals and vitamins contained in propolis, its activities can also be Gram positive bacteria which Mycobacterium tuberculosis is one of the Gram-positive bacteria, so that this can be added the granting of propolis for the treatment of Pulmonary Tuberculosis.

Analysis of Pulmonary TB sufferers healing process in the control group and treatment group

The results showed bring influence awarding of propolis on Pulmonary TB sufferer's treatment process is significant $p = 0.029$ i.e. smaller than $\alpha = 0.05$ means there are significant effects of propolis against granting process treatment lung sufferers it is likely because the group who were given additional treatment propolis 2 times 5 drops every day for 1 month can increase the durability of body lung sufferers so that can inhibit the growth of bacteria Micobakterium tuberculosis. This is in accordance with the opinion of the Ugur Arslan (2004) and that the propolis can ber antimicrobial activity as Gram positive. Propolis can also haveactivity as Gram-positive bacteria so that the possibilities of propolis selainmeningkatkan body durability can also kill the bacteria Mycobakterium tuberculosis. Granting of propolis will form a ligand bonds to spur the formation of IRAQ'S complex TLR-1/Iraq-4. IRAQ-1 complex activates the kinase protein complex is NOT-1, activation of the kinase and localization of nucleus transcription factors NFk-β to produce IFN-γ, IL-12. IFN-γ will produce ROS to activate Mykobakterium tuberculosis, while IL-12 will produce Th-1 to produce IFN-γ that produce ROS and then activate the bacteria Mycobakterium tuberculosis.

CONCLUSION

The healing process based on the results of the examination of the Acid-Resistant Bacteria on 2 months of treatment on a control group of 10 respondents indicating the results of 6 people experience the healing process by showing the results of Acid-Resistant Bacteria (-) and 4 people showed results of Acid-Resistant Bacteria (+). While in Treatment groups of 10 people, all of the respondents experienced a healing process with results of Acid-Resistant Bacteria (-). There was a statistically significant difference in the healing process between the control and treatment groups so that it can be concluded that the granting of propolis may help the healing process of pulmonary TB.

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