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Characteristics of Contact Dermatitis Patients (Irritant and Allergic) in RSUD Batara Siang Pangkep District

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ABSTRACT

Introduction: Contact dermatitis is the occurrence of an inflammation of the skin caused by exposure to a toxin (primary irritant) or by an allergenic material (sensitizer) or by both. At the 2009 meeting of Dermatologists, it was stated that 90% of occupational skin diseases are contact dermatitis, both irritant and allergic. 92.5% of occupational skin diseases are contact dermatitis, 5.4% due to skin infections 2.1% of skin diseases due to other causes.

Objective: To study the characteristics of contact dermatitis (irritant and allergic) at Batara Siang Regional General Hospital, Pangkep Regency, South Sulawesi Province in 2022-2023.

Methods: This research is quantitative research with descriptive research design. The sampling method is total sampling and as for the samples obtained from medical record data, namely 268 cases of contact dermatitis at Batara Siang Regional General Hospital, Pangkep Regency.

Results: The number of contact dermatitis cases was 268 cases consisting of 209 cases of ACD and 59 cases of ICD. Based on gender, the most cases were female in ACD and ICD, namely 41 ACD patients and 17 ICD patients in 2022, 79 ACD patients and 20 ICD patients in 2023. Based on age, 45-64 years old is the most common in ACD and ICD, namely 25 ACD patients and 9 ICD patients in 2022, 47 ACD patients and 11 ICD patients in 2023. Based on occupation, ACD is most common in students, namely 17 patients in 2022 and 32 patients in 2023 and in ICD, the work of housewives is 9 patients in 2022 and 10 patients in 2023. Based on the history of atopy, most of them did not have a history of atopy in both ACD and ICD, namely 69 ACD patients and 25 ICD patients in 2022, 128 ACD patients and 30 ICD patients in 2023.

Conclusion: Most characteristics based on gender, age, occupation and atopic history of ACD and ICD in 2022 and 2023 are mostly similar.

Keywords: Characteristics; Contact Dermatitis; Allergic Contact Dermatitis; Irritant Contact Dermatitis

INTRODUCTION

Dermatitis is an inflammation of the skin (epidermis and dermis) in response to exogenous factors. Dermatitis can cause itching, thickening of the skin or reddish spots on the skin and also scaly or watery. This occurs due to clinical abnormalities in the form of polymorphic efflorescence. (1) Contact dermatitis is the occurrence of an inflammation of the skin caused by exposure to toxin material (primary irritant) or with allergic material (sensitizer) or by both. Contact dermatitis is divided into two, the first is irritant contact dermatitis in which inflammation of the skin occurs due to direct contact between the skin and the material that causes the skin to become irritated. Second, allergic contact dermatitis is a response that causes allergies if the skin is in contact or exposed to materials that are sensitizers or allergens. There are many chemicals that contain allergens, but only a few will cause problems with the skin. (2)

Factors that affect contact dermatitis are indirect factors such as chemical characteristics, exposure characteristics, and environmental factors, while direct factors that contribute to the occurrence of contact dermatitis include genetic factors, gender, age, race, skin location, history of atopy, other factors can be in the form of individual behavior, personal hygiene, hobbies and odd jobs, as well as the use of personal protective equipment when working, length of contact, repeated frequency, temperature, humidity and history of skin disease. (3)

Contact dermatitis affects all ages but is more common in adults and is highest in the productive age of 25-44 years. From the gender of the occurrence of contact dermatitis more women than men. (4) According to the predilection of contact dermatitis most often on the hands, because the hands are the part of the organ that is most often used for daily work. (5) Some occupations such as farmers, construction workers, salon workers, textile workers, are usually associated with contact dermatitis. One occupation that has a high risk of this disease is construction workers. (6) Many irritants and allergens can cause contact dermatitis in construction workers, for example in bricklayers and cement masons who have a high risk of developing allergic contact dermatitis due to exposure to water-soluble hexavalent chromate in wet cement. (7)

Globally, dermatitis affected approximately 230 million in 2010 or 3.5% of the world's population. The prevalence of dermatitis is dominated by women, especially in the reproductive period, aged 15-49 years. In the United Kingdom and the United States, it is dominated by children, which are about 20% and 10.7% of the population while the adult group in the United States is 17.8 million (10%) people. (8) The results showed that the age group of 6-7 years, the prevalence of atopic dermatitis in India and Ecuador ranged from 0.9% and 22.5%. In Ecuador for the age group of 13-14 years, the prevalence rate in China and Colombia ranged from 0.2% and 24.6%, while the prevalence rate of more than 15% was found in 4 of the 9 regions studied including Africa, Latin America, Europe (France) and Oceania. Especially in low-income countries, such as Latin America or Southeast Asia, which have emerged as relatively high prevalence areas. (9)

The prevalence of dermatitis in Indonesia varies widely. At the 2009 meeting of Dermatologists, it was stated that 90% of occupational skin diseases were contact dermatitis, both irritant and allergic. 92.5% of occupational skin diseases are contact dermatitis, 5.4% are due to skin infections 2.1% of skin diseases are due to other causes. In an epidemiological study, Indonesia showed that 97% of 389 cases were contact dermatitis, of which 66.3% were irritant contact dermatitis and 33.7% were allergic contact dermatitis. (10) In a book entitled Contact & Occupational Dermatology 7th Edition, it is estimated that the incidence of occupational contact dermatitis is 0.5 to 0.7 cases per 100 workers each year. The incidence of occupational contact dermatitis is about 2% to 10% which usually occurs in the hands of 5% to 7% of people with dermatitis will develop into a chronic condition where 2% to 4% are difficult to cure using topical treatment. (10,11)

Based on research conducted by Sri Lestari (2018) which examines the characteristics of contact dermatitis in the Skin and Gynecology Clinic of Putri Hijau Medan Hospital in 2016. From the results of this study it was found that Irritant Contact Dermatitis (ICD) was the type of dermatitis with the highest cases (77%) compared to allergic contact dermatitis (23%). With female gender most commonly found (62%). And the age group of 25-44 years (40%) is most commonly found suffering from Contact Dermatitis. (12)

Based on research conducted by Cristine (2020) which examines the characteristics and management of contact dermatitis in samarinda primary health services, the results based on age groups, the highest age is children aged 6-11 years (26.7%). Based on productivity, the highest age is the productive age of 15-64 years (55%). The majority were female (63.4%). The most common occupation was student (42.5%). Patients most often sought treatment with the main complaint of itching (89.16%). Only a few medical records included contact history (3.3%). The most common location of skin complaints was the whole body (30.9%). The most commonly used treatment was antihistamines (86.66%). A case of contact dermatitis with recurrence was found (3.3%). (13)

With the background information above, the following problem formulation is appropriate: "What are the Characteristics of Contact Dermatitis (Irritant and Allergic) at Batara Siang Regional General Hospital, Pangkep Regency, South Sulawesi Province in 2022 - 2023".

METHOD

This type of research is quantitative research with descriptive research design to determine the characteristics of contact dermatitis (irritant and allergic) at Batara Siang Regional General Hospital, Pangkep Regency, South Sulawesi Province in 2022-2023. This research was conducted on April 26, 2024 to May 17, 2024. The population in this study were all patients who had been diagnosed with contact dermatitis (irritant and allergy) at Batara Siang Regional General Hospital, Pangkep Regency, South Sulawesi Province in 2022-2023. The sampling technique was total sampling, namely taking all medical records of patients who had been diagnosed with contact dermatitis (irritant and allergy) at Batara Siang Regional General Hospital, Pangkep Regency, South Sulawesi Province in 2022-2023 who met the inclusion criteria. Based on the sample obtained from medical record data, 268 cases of contact dermatitis were obtained at Batara Siang Regional General Hospital, Pangkep Regency.

The inclusion criteria in this study are patients diagnosed as contact dermatitis patients (irritants and allergies) at Batara Siang Regional General Hospital, Pangkep Regency, South Sulawesi Province in 2022-2023 and have medical records with complete filling. While the exclusion criteria are unreadable medical records (damaged / dirty) and diagnosed as patients suffering from other skin diseases and patients with recurrent contact dermatitis in the same year. Data collection was done through secondary data collection. Data collection was obtained through medical records. Data analysis in this study used Microsoft Excel 2016 and SPSS. Univariate analysis was carried out to determine the frequency of allergic and irritant contact dermatitis patients and process characteristic data in the form of distribution tables and graphs according to data obtained from medical records of Batara Siang Regional General Hospital, Pangkep Regency, South Sulawesi Province in 2022-2023.

RESULTSBased on the research that has been done, the following data is obtained:

Table 1 Respondent Characteristics **ICD ACD** 2023 2022 2023 2022 **Respondent Characteristics** % % n % % n n n Gender Male 33 44.6 56 41.5 37.0 37.5 10 12 55.4 79 Female 41 58.5 17 63.0 20 62.5 Age 2 2.7 5 1-4 years 3.7 1 3.7 2 6.3 5-14 years 8 10.8 13 9.6 3 11.1 3 9.4 16 21.6 32 23.7 4 14.8 5 15.6 15-24 years 25-44 years 11 14.9 20 14.8 8 29.6 8 25.0 25 33.8 47 34.8 9 33.3 11 34.4 45-64 years 12 16.2 15 11.1 2 7.4 3 9.4 >65 years Occupation Civil servant 10 13.5 16 11.9 3 11.1 4 12.5 Self-employed 11 14.9 17 12.6 3 11.1 3 9.4 3 12 16.2 20 Fisherman 14.8 11.1 4 12.5 Farmer 6 8.1 10 7.4 4 14.8 4 12.5 17 23.0 Student 32 23.7 4 14.8 5 15.6 Housewife 13 17.6 29 21.5 9 33.3 10 31.3 5 8.1 3.7 2 6.3 None 6.8 11 1 **History of Atopy** Atopic Dermatitis 5 6.8 7 5.2 2 7.4 2 6.3 0 0.0 0 Bronchial Asthma 0.0 0 0.0 0 0.0

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Total	74	100.0	135	100.0	27	100.0	32	100.0
None	69	93.2	128	94.8	25	92.6	30	93.8
Allergic Rhinitis	0	0.0	0	0.0	0	0.0	0	0.0

Based on data from table 1, the characteristics of respondents were found in the form of gender, age, occupation and atopy history of allergic and irritant contact dermatitis patients in 2022-2023. Based on gender, it can be seen that the distribution of allergic contact dermatitis patients is mostly found in women, namely 41 patients in 2022 and 79 patients in 2023. In irritant contact dermatitis sufferers, most were found in women, namely 17 patients in 2022 and 20 patients in 2023. Based on age, it can be seen that the distribution of allergic contact dermatitis sufferers is mostly suffered at the age of 45-64 years, namely 25 patients in 2022 and 47 patients in 2023. In patients with irritant contact dermatitis most suffered at the age of 45-64 years, namely 9 patients in 2022 and 11 patients in 2023. Based on the type of work, it can be seen that the distribution of allergic contact dermatitis sufferers is mostly suffered by students, namely 17 patients in 2022 and 32 patients in 2023. The most irritant contact dermatitis sufferers were suffered by IRTs, namely 9 patients in 2022 and 10 patients in 2023. Based on the history of atopy, it can be seen that the distribution of patients with allergic contact dermatitis mostly did not find a history of atopy in both, namely 69 patients in 2022 and 128 patients in 2023. In patients with irritant contact dermatitis, most of them did not have a history of atopy in both, namely 25 patients in 2022 and 30 patients in 2023.

DISCUSSION

Contact dermatitis is an inflammatory skin condition characterized by erythematous skin lesions and pruritus due to skin contact with foreign substances. (14) Contact dermatitis is an inflammatory skin disease caused by chemicals or metal ions that cause irritant effects or are caused by reactive chemicals (contact allergens) that modify proteins and cause an immune response. (15) Contact dermatitis is generally caused by external substances that cause inflammation such as chemicals contained in everyday tools such as accessories, cosmetics, topical drugs, metals, and clothing, detergents and work-related materials such as cement, laundry soap, pesticides, paints, and other chemical-containing materials. Contact dermatitis is classified into two, namely Irritant Contact Dermatitis (ICD) is skin inflammation that occurs without a sensitization process because it is caused by an irritant and Allergic Contact Dermatitis (ACD) is skin inflammation that occurs through a sensitization process to an allergen. (13)

Globally, dermatitis affected approximately 230 million in 2010 or 3.5% of the world's population. The prevalence of dermatitis is dominated by women, especially in the reproductive period, aged 15-49 years. In the United Kingdom and the United States, it is dominated by children, about 20% and 10.7% of the population, while adults in the United States are 17.8 million (10%) people. (8) At the 2009 Dermatologist's meeting, it was stated that 90% of occupational skin diseases are contact dermatitis, both irritant and allergic. 92.5% of occupational skin diseases are contact dermatitis, 5.4% due to skin infections 2.1% of skin diseases due to other causes. (10)

Based on the results of the study, it was found that the number of contact dermatitis cases at Batara Siang Hospital, Pangkep Regency, female patients were more dominant in ACD patients, namely 41 patients in 2022 and 79 patients in 2023. The results of this study are in line with research conducted by Maratus (2021) who also found that dermatitis cases were more dominant in women, namely 32 people (51.6%). (16)

Based on the results of the study, it was found that the number of contact dermatitis cases at Batara Siang Hospital, Pangkep Regency, female patients were more dominant in ACD patients, namely as many as 17 patients in 2022 and 20 patients in 2023. This study is in line with Sularsito and Soebaryo (2017) which states that the incidence of irritant contact dermatitis is more prevalent in women. (17) This study is also in line with Hafid's research (2021) entitled "Analysis of Risk Factors for Irritant Contact Dermatitis in Janitors at UMI in 2019" The results of the study were female 54 respondents 83.1% while janitors who were male 11 respondents 16.9%. (18)

There are differences between male and female skin, including the number of hair follicles, sebaceous glands or sweat glands and hormones. Men's skin has a dominant hormone, androgen, which can cause men's skin to sweat more and grow more hair, while women's skin is thinner than men's skin, making it more susceptible to skin damage. Men's skin also has aprokin glands whose job is to oil body hair and hair, these glands work actively during adolescence, while in women as they age, the skin will dry out more and the collagen in women's skin decreases faster than men. Therefore, women look older than men even though they are the same age. Collagen is the main support in the function of building component networks in the dermis. The protein in collagen is very good in maintaining skin firmness and flexibility. The dermis has a large network of blood vessels. The dermis also contains several epidermal derivatives, namely hair follicles, sebaceous glands and sweat glands. (19)

Based on the results of the study, it was found that cases of allergic contact dermatitis at Batara Siang Hospital, Pangkep Regency, patients aged 45-64 years were more dominant, namely 25 patients in 2022 and 47 patients in 2023. This study is in line with the research of Timoti et al (2017) that the most affected by allergic contact dermatitis

were adults aged 45-64 years as many as 18 people (43%), followed by adults aged 25-44 years as many as 10 people (24%). This study is also in line with Wahyu's research (2021), which found that the prevalence of ACD in adults ranged from 26-40% and in children ranged from 13-37%, and in people affected for life ranged from 10%.(19) This could be due to a decrease in endurance at this age while at that age there is still a lot of work that is directly exposed to allergens. However, age does not affect the onset of sensitization but allergic contact dermatitis is more common in adulthood but can affect all ages. (20)

Based on the results of the study, it was found that cases of irritant contact dermatitis at Batara Siang Hospital, Pangkep Regency, patients aged 45-64 years were more dominant, namely 9 patients in 2022 and 11 patients in 2023. The results of this study are in line with research conducted by Maratus (2021) which found that patients were more dominant above 40 years of age, namely 41-50 years old as many as 31 patients. (21)

Age is one of the risk factors for skin disorders and has a considerable influence in causing work accidents. With age the function of the body system will decrease, one of which is the body's ability to deal with toxic substances.49 Skin conditions will begin to experience the aging process at the age of 40 years. This happens because, at that age, the basal layer begins to thin so that skin cells are more difficult to maintain moisture and many dead cells accumulate because sebum production and cell turnover decrease sharply.50 Dermatitis can be experienced by all people of various ages, races, and genders.45 Those with older ages have dry and thin skin that is intolerant of soaps and solvents.51 This dryness of the skin makes it easier for chemicals to infect the skin, so that the skin becomes more prone to skin diseases. (22)

Based on the results of the study, it was found that the occupation of allergic contact dermatitis sufferers was mostly suffered by students, namely 17 patients in 2022 and 32 patients in 2023. This study is in line with research conducted by Cristine (2020) The most common occupation of contact dermatitis patients is students, totaling 51 people (42.5%). This study also found 40 people (33.3%) who listed work as not yet or not working, which cannot be known about their daily routine activities, so that exposure to irritants or allergens can come from many places.(13)

Based on the patient's RM, the most common location was found on the face especially in women and the most common on the wrist in men. This can be caused by the use of makeup in women, especially in cases of ACD suffered most by students who often try various makeup or skincare. The most common clinical symptom of ACD due to cosmetics is itching with the most common efflorescence recorded being erythematous macules. Then the most common location in men is on the right wrist due to the use of metal or rubber in clocks and or bracelets.

This study is in line with research conducted by Antoni (2014) The main complaint of OCD sufferers in this study was itching found in 28 (93.3%) patients, followed by red spots 2 (6.7%). The face is the most affected part of the patient's body, namely 29 (96.7%), followed by the neck and hands found in 7 (23.3%), scalp and feet found in 4 (13.3%), chest found in 2 (6.7%), armpits, lips and back each 1 (3.3%) patient.43 Based on research conducted by Marissa (2019) The most common etiology of ACD in this study was the use of morning cream or sunblock 101 patients, night cream 95 patients, powder 76 patients, and facial soap 36 patients. (23)

Based on the results of the study, it was found that the occupation of irritant contact dermatitis sufferers was mostly suffered by IRTs, namely 9 patients in 2022 and 10 patients in 2023. This study is in line with research conducted by Timoti et al (2017) that most patients in the work are housewives as many as 14 patients and the least are salon workers, motorcycle taxi drivers, self-employed as many as 1 patient (3%). Housewives are the most affected by contact dermatitis, possibly environmental and occupational factors. This is related to the daily activities of a housewife who is always in contact with the kitchen and detergents.

The incidence of contact dermatitis in Indonesia varies widely and is mostly suffered by workers. The results of epidemiological studies show that the incidence of Occupational Contact Dermatitis (OCD) is 0.5-1.9 cases/1000 workers / year. (13) The prevalence of dermatitis in Indonesia itself varies greatly. At the 2009 meeting of Dermatologists, it was stated that around 90% of occupational skin diseases are contact dermatitis, both irritant and allergic. Occupational skin diseases that are contact dermatitis amounted to 92.5%, about 5.4% due to skin infections and 2.1% of skin diseases due to other causes. In an epidemiological study, Indonesia showed that 97% of 389 cases were contact dermatitis, of which 66.3% were irritant contact dermatitis and 33.7% were allergic contact dermatitis. (24)

Contact dermatitis can occur in almost all types of work. This disease affects workers who are often exposed to materials that are toxic or allergenic. Workers in motorcycle repair shops are one of the workers who have a great risk of being exposed to chemicals so that they have the risk of experiencing various skin problems, such as Occupational Contact Dermatitis. Occupational contact dermatitis can provide mild to severe disruption in daily activities for sufferers, so that it can reduce productivity rates in workers. On the other hand, productivity is highly demanded in work. (24)

Based on the results of the study, it was found that the history of atopy in patients with irritant contact dermatitis was mostly not found in both, namely 69 patients in 2022 and 128 patients in 2023. This study is not in line with Al Hadi's research (2021) which found that more respondents in the study had a history of atopy as many

as 23 people (76.7%), compared to respondents who did not have a history of atopy totaling 7 people (23.3%). The p value = 0.009 indicates that a history of atopy has a significant relationship with the incidence of contact dermatitis. (24)

The presence of a history of atopy increases the risk of developing contact dermatitis 3.6 times. These results support research conducted on floor cleaning workers in hospitals, where there is a significant relationship between a history of atopy and the incidence of contact dermatitis. (25) The presence of a history of atopy in a person increases the susceptibility to contact dermatitis due to a decrease in threshold due to damage to skin barrier function. The history of atopy that has a major role in this susceptibility is the history of atopic dermatitis, especially for irritant contact dermatitis. The significant relationship of atopy history in this study supports this theory. The history of atopy found in this study is in the form of temperature allergy, cosmetic allergy, drug allergy, and the most common is food allergy. (26)

The history of atopy in the incidence of dermatitis is closely related to an impediment to the role of the skin barrier caused by decreased genetic function regulating the keratin envelope (filagrin and loricrin), decreased ceramide volume and increased proteolytic enzymes and trans-epidermal-water loss (TEWL). Adjustment of the skin barrier results in increased absorption and hypersentivity. The increase in TEWL and the weakening of skin capacintance and the adjustment of skin essential lipid levels make the skin drier and more sensitive. (27)

Based on the results of the study, it was found that the history of atopy in patients with irritant contact dermatitis mostly did not have a history of atopy in both, namely 25 patients in 2022 and 30 patients in 2023. This study is not in line with research conducted by Pradaningrum, S. Lestantyo, D., & Jayanti, S. (2018) concluded that there is an influence of atopic history on the onset of irritant contact dermatitis with an odd ratio value of 5.37, meaning that people who have an atopic history have a greater chance of 5.37 times compared to people who do not have an atopic history. (28)

Workers with a history of atopic dermatitis may be at higher risk of developing irritant contact dermatitis due to impaired skin permeability which leads to increased water loss and makes it easier for allergens and irritants to enter the skin. Workers with atopic dermatitis have a greater physiological response to irritants due to loss of filaggrin function which increases IL-1 release. Filaggrin is a component of the stratum corneum that is responsible for creating natural moisturizing factors responsible for hydration and differentiation of the epidermis. A decrease in filaggrin can lead to a higher risk of injury from harmful agents. This is why workers with a previous history of skin disease or are suffering from non-occupational dermatitis are more prone to occupational dermatitis, because the protective function of the skin has been reduced as a result of previous skin disease. The reduced protective functions include loss of skin layers, damage to sweat gland ducts and oil glands and changes in skin pH. Furthermore, Anggraini & Camelia's research concluded that a previous history of allergic skin disease has a significant relationship to irritant contact dermatitis. (19)

Previous studies have also reported the association of history of atopy and previous history of skin disease as risk factors for dermatitis. Internal factors associated with contact dermatitis are history of skin disease, history of atopy, history of allergy, and occupation. Some things that can be suggested to reduce the risk of developing dermatitis are to replace tofu coagulant with nigarin made from seawater juice, increase workers' awareness of skin diseases, especially contact dermatitis, maintain personal hygiene, and wear personal protective equipment such as gloves. Suryani's research reported that 35% of workers with good personal hygiene suffered from irritant contact dermatitis. While workers with poor personal hygiene were 81.8% who suffered from irritant contact dermatitis. (29)

CONCLUSION

Based on the research results found, it can be concluded that: 1) The number of Contact Dermatitis cases found at Batara Siang Hospital, Pangkep Regency was 268 cases consisting of 209 cases of Allergic Contact Dermatitis, and 59 cases of Irritant Contact Dermatitis. 2) Based on age, it was found that the dominant age was 45-64 years old in cases of ACD and ICD at Batara Siang Hospital, Pangkep Regency. 3) Based on gender, it was found that the dominant patient was female in cases of ACD and ICD at Batara Siang Hospital, Pangkep Regency. 4) Based on occupation, it was found that the dominant patient was a student in the case of ACD and a housewife in the case of ICD at Batara Siang Hospital, Pangkep Regency. 5) Based on Atopy History, it was found that the dominant patient did not have a history of atopy in cases of ACD and ICD at Batara Siang Hospital, Pangkep Regency.

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