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Original Article

Disease Profile of Skin Infection due to Virus toward Children

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ABSTRACT

Skin is a special organ in humans. The skin functions as a defense that is continuously affected by the external environment and always adapts to environmental changes. Infectious skin diseases can be caused by viruses. This study aims to determine the profile of viral skin diseases in children at the Ibnu Sina Teaching Hospital (RSP) Makassar and its network. Descriptive retrospective study using medical records of patients at RSP Ibnu Sina Makassar and its network, namely RSUD Makassar City, RSUD Haji South Sulawesi Province for the period January 2017–December 2022. The reseach results show that there were 113 cases of skin disease caused by viral infections in children who received treatment at RSP Ibnu Sina Makassar and its network with the number of cases being morbilli disease (33.6%), followed by varicella (27.4%), verruca vulgaris (21.2%), HZ (7.1%), HFMD (7.1%), and molluscum kotagiosum (3.5%). Most ages were 12–18 years (35.4%), 6–11 years (32.7%), 2–5 years (14.2%), 13 months–2 years (10.6%), 28 days–12 months (7.1%), and 0–27 days not found. Gender is male (47.8%) and female (52.2%). The length of stay for morbilli is 1-6 days, varicella 3-7 days, HFMD 3 days, molluscum contagiosum 3 days, HZ and verruca vulgaris each not hospitalized. Antiviral therapy was given as much as (38.9%) and antiviral therapy was not given (61.1%). The conclusion is viral skin infections were the most prevalent in children in 2017, dominant in early adolescence and female. The most Morbili were found, with female gender and middle childhood age. Varicella with a maximum length of stay of 7 days. Most were not given antiviral therapy.

Keywords*: Viral Skin Infections, Age, Gender*

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INTRODUCTION

Skin diseases are a common problem in developing and developed countries. Prevalence surveys in the last 20 years show that a quarter to a third of the population suffers from skin diseases, as well as in children, although they do not cause mortality, they cause morbidity and have a major psychological impact on children.[1]

The skin is a physical barrier that is essential for the maintenance of organismal homeostasis. It experiences, and reacts to, constant attacks from the outside including environmental changes (extreme heat, changes in humidity, sun exposure, etc.), allergens, toxic chemicals, and pathogenic microbes.[2] Skin diseases can occur in all groups and are common in children, it is even said to be a public health problem in developing countries.[3]

According to data from the 2010 Indonesian Health Profile which shows that skin and subcutaneous tissue diseases are ranked third out of the 10 most common diseases in outpatients in hospitals throughout Indonesia. Skin diseases are increasing, as evidenced by data from the Ministry of Health of the Republic of Indonesia (RI), the prevalence of skin diseases throughout Indonesia in 2012 was 8.46%, then increased in 2013 by 9%.[4]

In research by Wibawa, A.S, et al.[5] In 2017, through research on the profile of viral skin infections in children in the Pediatric Dermatology Division, Skin and Venereology Health Polyclinic, Central General Hospital (RSUP), Prof. Dr. R. D. Kandou Manado showed that viral skin infections in children were found in 12.71% of new patients, mostly in the 5-14 year age group and female.

In 2020, the Department of Health noted that in South Sulawesi province there was a 79.1% proportion of suspected measles. In 2021, of the 2,931 suspected measles cases there were 75 cases with 8 Extraordinary Events (KLB) suspected measles including those in South Sulawesi Province. This number is higher compared to 2020. Therefore, measles is a disease caused by a virus that manifests on the skin.[6,7]

In another study, it was reported that skin diseases caused by infections were mostly caused by viruses with the most cases being varicella. The length of hospitalization caused by viral skin infections is relatively short.[8,9] Thus, it can be concluded that most infectious skin diseases are caused by viruses.

Viruses are unique and interesting small subcellular agents that require host cells to replicate their genetic material. Viruses contain genomic nucleic acid, a protein coat, and some viruses also have a lipid coat. The lack of functional ribosomes or other organelles will cause the virus to require this host cellular machinery to replicate genetic material. Viral infections can produce a wide spectrum of mucocutaneous lesions, ranging from single papules to generalized pustules.[10]

Based on the background above, the author is interested in conducting research on the Profile of Viral Skin Diseases in Children at the Ibnu Sina Teaching Hospital (RSP) Makassar and its network for the period January 2017-December 2022.

METHOD

This research is a retrospective descriptive study to look at the distribution of viral skin infections in children at the Ibnu Sina Makassar Teaching Hospital and its network for the period January 2017 – December 2022 through secondary data, namely medical records.

This research was conducted from November to December 2023 at the Ibnu Sina Makassar Teaching Hospital and its network, namely the Makassar City Regional Hospital, the Haji Regional Hospital, South Sulawesi Province. This research sample used patient medical record data at Ibnu Sina Makassar and its network for the period January 2017 to December 2022. The sample was then excluded if the medical record data was incomplete and not readable properly.

Data collection in this study was carried out using secondary data from medical records. After that, observations, comparisons and direct recording were carried out. The data that has been obtained will be presented in the form of tables and narratives.

RESULT

The author used a total sampling method in this research, namely 113 samples and no samples were excluded. Medical record data regarding viral skin infections in children based on inclusion criteria at Ibnu Sina Hospital totaling 12 patients, Makassar City Regional Hospital totaling 75 patients, and Haji Hospital South Sulawesi totaling 26 patients collected from 2017 to 2022 with a total sample (n=113).

Table 1. Distribution of viral skin infections in children at RSP Ibnu Sina and its network 2017-2022

	Years						Total
	2017	2018	2019	2020	2021	2022	
Morbili	22	1	2	1	4	8	38
Varicella	6	0	8	5	2	10	31
Veruka Vulgaris	12	7	1	1	1	2	24
Herpes Zoster	2	3	1	0	1	1	8
Hand, Foot, And Mouth Disesase	0	0	0	1	1	6	8
Moluskum Kontagiosum	1	1	1	0	0	1	4
Total (%)	43 (38.1%)	12 (10.6%)	13 (11.5%)	8 (7.1%)	9 (8.0%0	28 (24.8%)	113 (100%)

Based on table 1. It can be seen that the number of patients with viral skin infections in children who received treatment at Ibnu Sina Hospital and several network hospitals in the city of Makassar in 2017-2022 was 113 people, whereas in 2017 there were 43 people (38.1%), in 2018 there were 12 people (10.6%), in 2019 there were 13 people (11.5%), in 2020 there were 9 people (8.0%), and in 2021 there were 28 people (24.8%). With the highest number of cases of morbilli disease (33.6%), followed by varicella (27.4%), verruca vulgaris (21.2%), HZ (7.1%), HFMD (7.1%), and molluscum kotagiosum (3.5%).

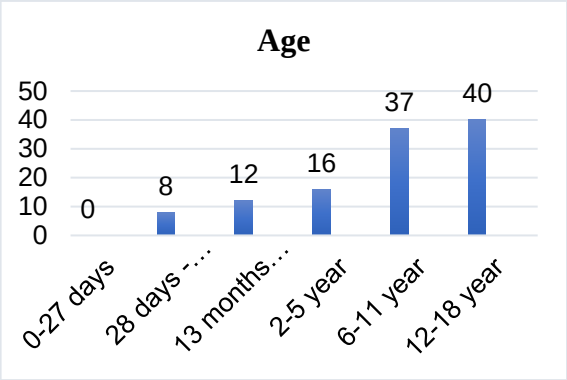

Figure 1. Bar diagram of the distribution of viral skin infections in children according to age at RSP Ibnu Sina and its network 2017 – 2022.

Table 2. Distribution of viral skin infections in children each year according to gender at RSP Ibnu Sina and its networks 2017 - 2022

Gender	Years						Total (%)
	2017	2018	2019	2020	2021	2022	
Man	21	6	7	4	6	10	54 (47.8%)
Woman	22	6	6	4	3	18	59 (52.2%)
Total	43	12	13	8	9	28	113 (100%)

Based on the table 2. It can be seen over a period of 6 years (January 2017 to December 2022) at RSP Ibnu Sina and its network, 54 male patients (47,8%) and 59 female patients (52,2 %).

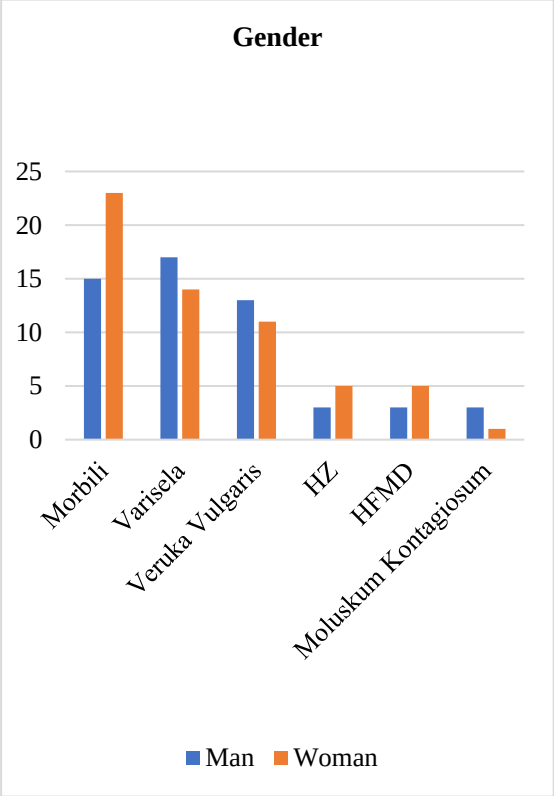

Figure 2. Bar diagram of the distribution of types of viral skin infections in children each year according to gender.

Table 3. Distribution of Types of Viral Skin Infections in Children Based on Length of Hospitalization.

Types of diseases	Length of Hospitalization (days)
Varisela	3-7
Herpes Zoster	0
Morbili	1-6
Veruka Vulgaris	0
Hand, Foot, & Mouth Disease (HFMD)	3
Moluskum Kontagiosum	3

Based on table 3, distribution data can be seen. Based on length of stay, it shows that the length of stay for morbilli patients is 1-6 days, varicella 3-7 days, HFMD 3 days, molluscum contagiosum 3 days, HZ and verruca vulgaris 0 days each.

Table 4. Distribution of Types of Viral Skin Infections in Children Based on Therapy.

Types of diseases	Antivirus Provided (%)	Antivirus is not provided (%)	Total
Varisela	23 (74.2%)	8 (25.8%)	31
Herpes Zoster	8 (100%)	0 (0%)	8
Morbili	8 (21.1%)	30 (78.9%)	38
Veruka Vulgaris	0 (0%)	24 (100%)	24
Hand, Foot, & Mouth Disease (HFMD)	5 (62.5%)	3 (37.5%)	8
Moluskum Kontagiosum	0 (0%)	4 (100%)	4
Total	44 (38.9%)	69 (61.1%)	113 (100%)

Based on table 4, it shows that 31 patients were given varicella, 23 were given antivirals and 8 patients were not given antivirals, 8 patients were given antivirals for HZ disease and all were given antivirals. There were 38 cases of morbilli disease, 8 of them were given antivirals and the remaining 30 were not given antivirals. There were 24 patients with verruca vulgaris and 4 patients with molluscum contagiosum, all of whom were not given antivirals. There were 8 HFMDs, 5 were given antivirus and 3 were not given antivirus.

DISCUSSION

Based on this research, the distribution of viral skin infections in children at Ibnu Sina Hospital and several network hospitals in the city of Makassar in 2017-2022 was highest in 2017 (38.1%) and lowest in 2020 (7.1%).

According to a study, the reason for the difference in the number of cases of viral skin infections in children in 2020 compared to the previous year could be due to the COVID-19 pandemic, which resulted in a decrease in the number of community visits, / with the largest decrease in children.[11] The PSBB policy and people's concerns about being infected with COVID-19 have caused people to prefer to avoid contact with other people.[12]

The results of this research are in line with research conducted by Wibawa et al. in the 5–14 year age group, which covers 73.4%.[5] This is caused by viruses that cause skin infections, because children in this age group start going to

school and do more activities, which increases the possibility of transmission or spread virus. Where there is a correlation between skin diseases and personal hygiene.[13]

Research on Morbilli disease obtained results that were not in accordance with existing research and literature, because the majority of samples who came to the hospital with Morbilli disease were female, this was due to the high level of concern for girls about disease transmission and concerns about the emergence of scars on the skin.

The reasons for these differences relate to the nature of varicella, climate models, geographic location, population density, and risk of exposure are some of the factors that may influence differences in incidence. According to several previous studies, the number of cases in women is lower than in men. This may be because men engage in more activity, have poorer health habits, and are more likely to be infected. The varicella epidemic can be caused by several conditions in suburban areas, such as lack of awareness of vaccination or knowledge about the disease, more frequent population migration, and low average family income. These conditions can hinder the use of immunization.[14]

Verruca vulgaris disease was found to be more dominant in men, this research is in line with that conducted by Nadia et al. at Dr. RSUP. M. Djamil, Padang 2020: male gender was found to be 57.9% in verruca vulgaris and Wibawa et al. at RSUP Prof. Dr. R. D. Kandou, Manado 2017: male gender 53%.[5,15]

This research on HZ disease was found mostly in women, based on literature references which show that HZ occurs more often in women than men,[16] and the research findings of Syarifa et al. at RSP Ibnu Sina Makassar showed that girls were more often affected by HZ than boys.[17]

Distribution data shows that HFMD occurs most often in female patients. This contradicts Edi Hartoyo's research. Banjarmasin 2020: which found that HFMD is more common in boys than girls.[18] This may be due to boys' frequent exposure to enterovirus-contaminated environments or toys, where poor hygiene can increase the chance of infection. However, research conducted by Peng et al. China 2023: shows that there is no significant difference in clinical outcomes between different gender groups; this suggests that gender does not influence disease development.[19]

Morbilli disease is found mostly in middle childhood, the results of this study are slightly different from those carried out by Riastini et al. Bali 2021: found that morbilli disease is most common in children aged 5 – 9 years. Another similar research was conducted by Saputri. Pontianak 2020: morbilli disease was found to be predominantly in children aged 1 – 4 years and 5 – 9 years.[20] This virus is very contagious, with a secondary attack rate approaching 90% in susceptible individuals. Transmission can occur through direct contact from person to person or through airborne spread.[22] Children are more easily infected with measles because they have started interacting with the environment around them, such as at school or at home.[22]

Based on the fact that verruca vulgaris is found mostly in early adolescence, the literature states that prevalence figures show 15% prevalence in school children aged four years, increasing significantly to 44% in children aged eleven years.[23] The results of this study are in line with those conducted by Wibawa et al. Manado 2017: shows that the age group with the highest frequency of verrucae is 5–14 years old (25.6%).[5] The results of this study are also similar to those conducted by Dalitan et al. Bali 2021: with the highest frequency of verruca vulgaris occurring in those aged 11-20 years, with 30 cases (36.6%).[24] The reasons for the differences in prevalence of verruca vulgaris between children's ages are still largely unknown, which may be due to related differences. age in physical activity and sports participation, stratum corneum resistance, and immunity.[25]

In this study, most of them were not given anti-viral therapy. Regarding varicella, most people are given antivirals. This is because in immunocompetent children, varicella is generally benign and can heal by itself. However, in severe cases antiviral therapy can reduce vesicle formation, crusting, pain (acute neuritis), and complications within 72 hours after the exanthema. Bacterial superinfection is the most common complication, especially in vesicular lesions and erosions. Likewise, in HZ disease, all are given antiviral therapy to reduce skin symptoms and complications in immunocompromised varicella and HZ patients.[26]

In dominant morbilli disease, antivirals are not given, this is because the management of morbilli is supportive, because there is no

approved specific antiviral therapy. Most antiviral therapy is not administered because treatment concentrates on antipyretics, fluids, and vitamin A as well as managing complications associated with bacterial superinfection, respiratory distress, and neurologic sequelae.[27]

In HPV, antiviral therapy is not given. Referring to the literature, many non-cancerous skin manifestations of HPV may resolve on their own. There is no single, definitive therapy that can cure all warts. So in this study all verruca vulgaris were not given antiviral therapy.[28]

Antivirals are not given for molluscum contagiosum. Molluscum contagiosum infection can heal on its own (self-limited disease) in immunocompetent sufferers. Molluscum contagiosum lesions will heal on their own after several months or years in immunocompetent individuals.[39]

HFMD is self-limiting, and only requires symptomatic therapy. In immunocompromised cases of HFMD, antiviral therapy can be given to prevent complications.[30]

CONCLUSION

The number of patients among children was 113 people, of which in 2017 it was 38.1%. The highest number of patients aged 12-18 years was 35.4%. The largest number of patients was female at 52.2%. Morbili disease is found mostly, based on female gender, it is more dominant, while in the age group the most is 6 - 11 years. The length of stay for morbilli patients is 1-6 days, followed by 3-7 days for varicella patients. Of the types of viral skin infections, the majority were not given antiviral therapy as much as 61.1%.

Given that the prevalence of viral infections is constantly changing, similar studies on skin infectious diseases should be conducted periodically. Apart from that, it is necessary to carry out research with a larger sample size, more variables, and wider research coverage so that the research is more comprehensive. Based on this research, morbilli disease is more dominant, hospitals and health workers are expected to be able to maintain and improve the quality of their services to the community by providing more information about vaccination to parents and education to children regarding the transmission of this disease as a preventive measure to prevent viral infections.

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