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Profile Of Leper Patients With Reversal Reactions In Irj Skin And Genitals Morbus Hansen Division Dr Soetomo Regional Hospital

Dyfe Alisya Putri, Yuri Widia, Medhi Denisa Alinda, Pradana Zaky Romadhon

Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia

[1]Email:ID dyfe.alisya.putri2022@fk.unair.ac , [2]medhidenisaaalinda@gmail.com , [3]yuri.widia@fk.unair.ac
[4]zaky.romadhon@fk.unair.ac.id

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ABSTRACT

Leprosy (leprosy) is still a public health problem in Indonesia, with East Java as one of the provinces with a high number of cases. Reversal reactions (type 1 reactions) are immunological complications in leprosy patients and can cause permanent nerve damage if not treated properly. This study aims to determine the clinical and epidemiological profile of leprosy patients with reversal reactions who seek treatment at the Skin and Venereology Outpatient Installation at RSUD Dr. Soetomo Surabaya for the period January 2015 to September 2024. Retrospective descriptive research by analyzing medical record data of leprosy patients who experienced reversal reactions at the Skin and Venereology Outpatient Installation at Dr. RSUD. Soetomo Surabaya from January 2015 to September 2024. Data collected includes demographic characteristics (age, gender, occupation, address), type of leprosy, time of reaction, clinical manifestations, degree of disability, and therapy modalities. The number of leprosy patients based on the results of research on patient medical records for the period 2015 to 2024 was 14,056 patients, an increase in the number of patients compared to previous years, of this number of patients with reversal reactions were 222 patients (1.58%) while type 2 (*erythema nodosum leprosy*) as many as 13,834 patients (98.42%). The conclusion of this study is that reversal reactions occur more often in patients with multibacillary leprosy (MB) and generally in adult men, more precisely over 17 years. The incidence of reversal reactions was also found more frequently in patients who had undergone treatment *Multidrug Therapy* (MDT), with most reactions occurring 1-3 years after treatment begins. Treatment of leprosy with a reversal reaction requires careful monitoring and multidisciplinary management involving a variety of therapies, including the use of appropriate medications as well as additional therapies to reduce inflammation and improve the patient's quality of life.

Keywords: *Leprosy, reversal reaction, type 1 reaction, clinical profile, RSUD Dr. Soetomo*

1. INTRODUCTION

The word leprosy comes from the Indian language, Kustha, known since 1400 BC, and has other names, namely leprosy and Morbus Hansen. It was named Morbus Hansen because of the germ that causes leprosy, namely *Mycobacterium leprae*, discovered by G.A. Hansen in 1873 in Norway (Idris & Mellaratna, 2023). Leprosy or leprosy is an infectious disease that can cause complex problems both for the patient's medical condition in the form of physical disabilities, as well as causing social and economic problems (Ministry of Health of the Republic of Indonesia, 2019). Epidemiologically, leprosy is widespread throughout the world, with the highest prevalence in the Southeast Asia region (Ministry of Health of the Republic of Indonesia, 2018). Leprosy or leprosy is transmitted through prolonged close contact and through inhalation, because *M. leprosy* can live for several days *droplet*. Humans are another source of infection *armadillo*, with *Mangabey*, with *Cynomolgus*, and chimpanzees (Aisyah & Agusni, 2018). Leprosy can be transmitted if they come into contact with sufferers, because based on statistical data only 5% will be infected. As an illustration, out of 100 people who are exposed, 95% of them remain healthy, 3% are infected and recover on their own without medication, while the other 2% become sick and need treatment (Ministry of Health of the Republic of Indonesia, 2018). Minimal knowledge of leprosy has resulted in the development of negative stigma in society, which has an impact on the quality of life of sufferers and the social life of the environment.

Data from the Ministry of Health of the Republic of Indonesia, throughout 2023 recorded 17,251 visits by leprosy patients in Indonesia. This number has increased from 2022 to 14,821 cases, with details of 90% of leprosy cases being the *multibasiler* and 8.2% attacked children. As many as 5.7% of leprosy sufferers experience grade 2 disability, proving that prevention of leprosy transmission throughout Indonesia has not been handled properly. According to World Health

Organization (WHO) data, in 2022 Indonesia will be the country with the 3rd largest number of leprosy cases in the world after India and Brazil, with a total of 12,612 leprosy cases (Adriaty et al., 2023).

The diagnosis of leprosy is made based on clinical conditions, with the main visible characteristics including white spots or reddish skin accompanied by numbness (Sibero, 2021). Apart from these characteristics, there is also thickening of the peripheral nerves accompanied by nervous disorders, namely numbness in the eyes, hands, feet, dry skin (dehydration), and disruption of hair growth (alopecia) in the lesions (Adriaty et al., 2023). In leprosy sufferers, swabs of the nasal mucosa found the presence of bacteria *M. leprosy*, and histologically there are diffuse granules in the dermis and bacilli are found in relatively large numbers. The leprosy reaction is a hypersensitivity reaction, namely the acute stage of leprosy with symptoms of constitution, activation, and/or the emergence of new efflorescence on the skin, and the hypersensitivity reaction is a very chronic stage (Fitriani et al., 2022).

Type 1 leprosy reaction or what is called a reversal reaction is the body's allergic reaction to bacteria *Mycobacterium leprae*, often occurs before or after leprosy therapy begins because it shows specific immunity to bacteria *Mycobacterium leprae* . The clinical symptoms of leprosy are a reversal reaction which shows the appearance of inflammation on the skin or nerves of the sufferer, namely on the skin causing redness, swelling, pain and heat, while on the nerves, it will cause pain and nerve problems. This reversal reaction has the potential to cause physical disabilities if not treated properly. Reversal reactions occur when a sudden increase in immunity is mediated by cells (*cell mediated immunity*) which causes an inflammatory response or inflammation of the skin or nerves in borderline type patients (BT, BB, and BL). Although the main trigger is not yet known, it is thought to be related to delayed-type hypersensitivity reactions (Aisyah & Agusni, 2018). The reversal reaction shows an increase in the bacterial index and/or positive morphological index. Skin lesions in the form of red plaques such as erysipelas, cellulitis, acute urticaria, drug eruption, and insect bites are other differential diagnoses. Clinical symptoms of a reversal reaction are characterized by the presence of some or all of the existing lesions becoming more numerous and active in a short time. Hypopigmented lesions become more erythematous, erythematous lesions become more erythematous, macular lesions become infiltrative, and old lesions become more extensive and generally the constitutional symptoms are milder than *erythema nodosum leprosy* (ENL)

The research entitled "Analysis of Risk Factors for Leprosy Reactions: Retrospective Study in Indonesian Tertiary Referral Hospitals 2015-2020" was written by Dr. M. Yulianto Listiawan, dr., Sp.KK (K) used data on leprosy patients treated by RSUD Dr. Soetomo between January 2017 and December 2019 there were 364 leprosy patients. Of the 364 cases, 17.9% were diagnosed with leprosy exposure with a reversal reaction. Most of the patients were of productive age, namely 35-55 years (56.9%). male (75.4%), had normal nutritional status (98.5%), and had a negative bacterial index (72.3%). The most common types of leprosy are BB (61.6%) and BL (20.8%). The age distribution is 35-55 years (56.9%), productive age. This is similar to previous research, which reported that most patients with type 1 leprosy reactions were aged 30-60 years. Age is an independent risk factor for type 1 reactions which are more likely to be experienced by patients over 20 years of age (Listiawan et al., 2022).

Reversal reactions or type 1 leprosy reactions occur due to changes in the balance between cellular or immune responses *cell mediated immunity* (CMI) and the entry of bacilli *M. leprosy* on the nerves and skin of leprosy patients, the body's immune mechanism can be: *upgrading/reversal* or *downgrading*. Patients infected with subpolar type leprosy have unstable immunity so that the intensity of type 1 reactions occurs more often, especially type BB (Bhat & Prakash, 2012). Clinical symptoms of type 1 leprosy patients include inflammation of the skin and nerves, and have the potential to result in physical disabilities such as paralysis and deformity if not treated through appropriate management (Widiatma et al., 2019). Leprosy patients have a significant potential for experiencing a reversal or type 1 reaction, which can cause damage to the peripheral nerves in the form of impaired sensory function, resulting in permanent physical disability, neuritis, drug factors, other trigger factors besides the patient's internal/drugs (Etika, A.N, Sri Haryuni, 2015).

The author is interested in conducting descriptive research using secondary data from medical records of leprosy patients for the period January 2021 to December 2023 at the Skin and Venereology Outpatient Installation at RSUD Dr. Soetomo Surabaya. The research was conducted to describe the prevalence of reversal reactions or type 1, the clinical profile of reversal reaction patients, demographics, the phase of transmission to reversal reactions and management. The treatment is entitled "Profile of Leprosy with Reversal Reactions in the Skin and Genital Health Outpatient Installation of Dr. Soetomo General Hospital Surabaya for the Period January 2021 - December 2023" so that the management is adjusted to the type of reaction and the degree of severity, reducing morbidity, to improve the quality of life.

2. RESEARCH METHODS

This type of research is a retrospective descriptive research approach *cross-sectional*. This research design was carried out by describing and analyzing the phenomenon or occurrence of leprosy patients with reversal reactions or type 1 reactions based on secondary data sources in the form of medical records of leprosy patients with reversal reactions for the period January 2015 to September 2024.

The population of this study were leprosy patients with reversal reactions or type 1 reactions in the Skin and Venereology Outpatient Installation, Morbus Hansen Division, Dr. Hospital. Soetomo Surabaya. The sample in this study was the Genital and Skin Outpatient Installation, Morbus Hansen Division, RSUD Dr. Soetomo Surabaya. The sample selection technique in this study was divided into reaction 1 leprosy patients at the Genital and Skin Hazard Installation, Morbus Hansen Dr. Division. Soetomo Surabaya for the period January 2015 to September 2024 into several strata or groups based on number, gender, age, type of leprosy, reaction symptoms based on MDT administration, peripheral nerve symptoms, type of therapy and physical disability. The sample size for this study was the number of all reaction 1 leprosy patients at the Genital and Skin Hazard Installation, Morbus Hansen Dr. Division. Soetomo Surabaya for the period January 2015 to September 2024.

Implementation of research implemented from April 2024 to December 2025. Processing and analyzing research data is a sequential process that provides an overall picture from the planning, implementation and data collection stages, analysis to interpretation and presentation of data. Processing and analysis of research data can be used as a method in research, because the design is explained comprehensively and is easy for researchers and academics to understand. (Nanda, 2023). Qualitative research design is a way of planning and carrying out research that focuses on subjective meaning and experience. This qualitative research research design uses data triangulation from document analysis, interviews, and participant observation. Qualitative research design includes participant selection, data collection techniques, data analysis, interpretation and conclusions (Sugiyono, 2023).

3. RESULT AND DISCUSSION

Reversal Reaction Leprosy Sufferers for the Period 2015 to 2024

Leprosy is a chronic infectious disease caused by *Mycobacterium leprae*, an acid-fast bacillus. Clinically, leprosy is characterized by the presence of one or more of the following characteristics: hypopigmentation or skin patches *macular erythematous* with loss of sensation in the skin, thickening of the peripheral nerves, and the presence of acid-fast bacilli detected in skin smears or biopsies. Leprosy is an endemic disease in several countries, including Indonesia. In general, it can be treated and rarely causes death, but this disease has the risk of causing disability. As a result, leprosy sufferers are at risk of experiencing discrimination or *social extraction* which can have an impact on his psychological condition.

Leprosy or leprosy is caused by a bacterial infection *Mycobacterium leprae*, can be transmitted from one person to another through droplets from the respiratory tract (*droplet*), namely saliva or phlegm, which comes out when coughing or sneezing. A person can contract leprosy if exposed to splashes *droplet* from sufferers continuously for a long time. In other words, the bacteria that cause leprosy cannot be transmitted easily and take a long time to reproduce in the sufferer's body.

Reversal reactions occur due to changes in the balance between cell-mediated immunity (CMI) and bacteria *Mycobacterium leprae* in the nerves and skin of leprosy patients with the final result being upgrading or reversal. Subpolar-type leprosy patients have unstable immunity so they often experience repeated reversal reactions, especially the Borderline Borderline (BB) type. Clinical symptoms of a reversal reaction in the form of inflammation of the skin or nerves can cause disability if not treated properly.

Table 1. Number of leprosy patients in the Leprosy Division, Skin and Venereology Health Outpatient Unit, Morbus Hansen Division, RSUD Dr. Soetomo Surabaya for the period 2015 – 2024

Kunjungan Pasien	Tahun	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Jumlah	Riil	1464	1271	1278	1196	1903	1360	970	1133	1618	1863	**14056**
	%	*10,41548*	*9,042402*	*9,092203*	*8,508822*	*13,5387*	*9,675583*	*6,900968*	*8,060615*	*11,5111*	*13,25413*	***100***

Study *Retrospective Study: Type 1 Leprosy Reaction* which was previously carried out by Aisyah Icha and I Agusni in 2018, explained the number of leprosy patients in the Outpatient Installation for skin and venereal diseases, Morbus Hansen Division, Dr. Hospital. Soetomo, for the period January 2011 to 2015, there were 713 patients, in the period 2010 to 2013 there were 594 leprosy patients and in the period 2011 to 2013 there were 434 leprosy patients.

Based on medical records of leprosy patient visits, in the period 2015 to 2024 at the Outpatient Installation for skin and venereal diseases, Morbus Hansen Division, Dr. Hospital. Soetomo as many as 14,056 new patients, of this number of patients with reversal reactions were 222 patients (1.58%) while type 2 (*erythema nodosum leprosy*) as many as 13,834 patients (98.42%).

Leprosy patients can experience an inflammatory episode called a leprosy reaction. These reactions can occur before, during, or after treatment. There are 2 types of leprosy reactions, namely reversal reactions and type 2 reactions (*erythema nodosum leprosy*) which is differentiated from the type of immunity that plays a role. If not handled properly, this reaction will lead to disability. Reversal reactions are caused by increased cellular immune responses in the form of delayed-type hypersensitivity reactions to antigens *Mycobacterium leprae* in nerves and skin. This reaction is a result of changes in the

balance between *cell mediated immunity* (CMI) with basil. When a reversal reaction occurs, there are two possible final results of this reaction, namely *upgrading/reversal* if there is an increase in the CMI response to the antigen *Mycobacterium leprae* thus leading to the clinical form of tuberculoid or *downgrading* if there is a decrease in the CMI response to antigen, it leads to a lepromatous clinical form. Subpolar type leprosy patients have unstable immunity so they often experience recurrent type I reactions, especially type I *borderline borderline leprosy* (BB) because the number of bacilli and CMI levels are relatively balanced so it is very easy to experience changes in the immune response.

The discussion in this research then focuses on the results of research based on medical records of leprosy patients with reversal reactions for the period 2015 to 2024 in the Outpatient Installation for skin and venereal diseases, Morbus Hansen Division, Dr. Hospital. Soetomo, there were 14,056 new patients, of which 222 patients had reversal reactions (1.58%).

Profile of Reversal Reaction Leprosy Sufferers

Leprosy patients had reaction 1 or reversal reaction at the Outpatient Installation for Skin and Venereal Diseases, Morbus Hansen Division, Dr. Hospital. Sutomo Surabaya, based on the results of research on patient medical records for the period 2015 to 2024, there were 222 patients.

Table 2. Total number of leprosy patients with reversal reactions in the Leprosy Division, Skin and Venereology Outpatient Installation, Morbus Hansen Division, Dr. Hospital. Soetomo Surabaya for the period 2015 – 2024

Jumlah Pasien	Tahun										Jumlah	
Reaksi Reversal	2015-2016	%	2017-2018	%	2019-2020	%	2021-2022	%	2023-2024	%	Riil	%
Jumlah	95	*42,79279*	61	*27,47748*	44	*19,81982*	18	*8,108108*	4	*1,801802*	222	***100***

A reversal reaction (reversal reaction) is an allergic reaction of the body and shows the presence of specific immunity against part of the bacteria *Mycobacterium leprae*. This reaction most often occurs after leprosy therapy has started, but can also appear before or after therapy is finished.

Leprosy reaction type 2 (*erythema nodosum leprosy*) is caused by sudden immune deposition in the blood vessels, causing inflammation of the blood vessels. The mechanism of this reaction is not yet known with certainty.

Distribution of leprosy types based on gender of leprosy patients with reversal reactions in the Leprosy Division, Skin and Venereology Outpatient Installation, Morbus Hansen Division, Dr. Hospital. Soetomo Surabaya for the 2015 – 2024 period was dominated by female patients, namely 112 patients (50.45%), followed by 110 male patients (49.55%). The age group for reversal or reversal reactions was mostly in the 15 to 20 year age group, namely 43 patients (19.37%), then 26 to 30 year olds were 37 patients (16.7%). Leprosy can infect all age ranges from babies to the elderly, because this disease is transmitted by untreated leprosy sufferers through relatively long-term contact through *droplet* or droplets of body fluids either coming out through the nose or mouth.

Distribution of patients based on leprosy type as per medical records of leprosy patients in the Outpatient Division for venereal and skin diseases, leprosy type *multibacillary* (MB) as many as 6 patients (2.7%) and type *paucibacillary* (PB) as many as 9 patients (4.1%). The TT type of leprosy patients dominated with 173 patients (77.9%), the LL type with 5 patients (2.3%), the BT type with 11 patients (4.9%), the BB type with 15 patients (6.8%) and the BL type with 3 patients (1.3%). Based on the WHO classification, the distribution of types of leprosy in patients as in the medical records of leprosy patients in the Outpatient Division for venereal and skin diseases, type of leprosy *multibacillary* (MB) as many as 6 patients (2.7%) and type *paucibacillary* (PB) as many as 9 patients (4.1%) as in table 5.6.

Reaction Symptoms of Leprosy Sufferers Based on MDT Administration

Table 3. Data on reaction symptoms based on MDT administration in leprosy patients with reversal reactions in the Leprosy Division, Skin and Venereology Health Outpatient Installation, Morbus Hansen Division, Dr. Hospital. Soetomo Surabaya for the period 2015 – 2024

Reaksi Tipe 1 berdasar Pemberian MDT	Tahun										Total
	2015-2016	%	2017-2018	%	2019-2020	%	2021-2022	%	2023-2024	%	
Selama 0-9 bulan	72	0,324324	49	0,220721	25	0,112613	9	0,040541	3	0,013514	158
1-3 tahun atau > 3 tahun	7	0,031532	2	0,009009	0	0	1	0,004505	0	0	10
Sebelum MDT	9	0,040541	8	0,036036	13	0,058559	2	0,009009	1	0,004505	33
RFT	7	0,031532	2	0,009009	6	0,027027	4	0,018018	2	0,009009	21
Total	95		61		44		16		6		222

Based on medical record data from leprosy patients in the Outpatient Division for Venereal and Skin Diseases, symptoms of reactions based on MDT administration often occur after MDT administration up to 9 months, as many as 158 patients (71.2%) are of the type of leprosy. *multibacillary* (MB) and type *paucibacillary* (PB)); 9 to 12 years or 1-3 years as many as 10 patients (4.5%), before (*multy drug theraphy*) MDT as many as 33 patients (14.9%) and after (*release from treatment*) RFT of 21 patients (9.5%).

Leprosy (leprosy) is a chronic infectious disease caused by the bacteria Mycobacterium leprae, which mainly attacks the skin, peripheral nerves, upper respiratory tract mucosa and eyes. Since the introduction of Multi-Drug Therapy (MDT) treatment by WHO in 1982, leprosy treatment has experienced significant progress. MDT consists of a combination of the drugs dapsone, rifampicin, and clofazimine which are given for a certain duration according to the disease classification.

Although MDT is effective in killing the bacteria that cause leprosy, approximately 30-50% of patients may experience a phenomenon known as a leprosy reaction. Leprosy reactions are the body's immunological response to M. leprae bacterial antigens and can occur before, during, or even after completion of MDT therapy. This reaction can cause acute inflammation of existing skin lesions, the formation of new lesions, as well as nerve inflammation which has the potential to result in permanent nerve damage and disability if not treated appropriately.

An in-depth understanding of the symptoms of leprosy reactions related to MDT administration is very important for health workers to recognize early signs of reactions, provide timely intervention, and prevent long-term complications. Apart from that, this knowledge is also crucial for patients to increase treatment compliance and awareness of possible reactions during the treatment period.

Peripheral Nerve Symptoms of Leprosy Patients

Table 4. Data on reaction symptoms based on MDT administration in leprosy patients with reversal reactions in the Leprosy Division, Skin and Venereology Health Outpatient Installation, Morbus Hansen Division, Dr. Hospital. Soetomo Surabaya for the period 2015 – 2024

Gejala Saraf Tepi	Tahun										Jumlah	
	2015-2016	%	2017-2018	%	2019-2020	%	2021-2022	%	2023-2024	%	Riil	%
Ada Kelainan Saraf	81	*85,2632*	47	*77,0492*	41	*93,1818*	15	*83,3333*	4	*100*	188	*84,68468*
Tidak ada kelainan saraf	14	*14,7368*	14	*22,9508*	3	*6,81818*	3	*16,6667*	0	*0*	34	*15,31532*
Total	95	*100*	61	*100*	44	*100*	18	*100*	4	*100*	**222**	***100***

Based on data from medical records of leprosy patients in the Outpatient Division for venereal and skin diseases, peripheral nerve symptoms in leprosy sufferers with reversal reactions often had neurological abnormalities, namely 188 patients (84.7%) while those who showed no neurological abnormalities were 34 patients (15.3%).

Type 1 reactions occur primarily in patients with borderline leprosy spectrum (*borderline tuberculoid, mid-borderline, dan borderline lepromatous*) and is characterized by an increased cellular immune response to M. leprae antigens. This condition can appear spontaneously or be triggered by various factors such as stress, intercurrent infections, pregnancy, or even in response to Multi-Drug Therapy (MDT) treatment.

Peripheral nerve involvement in Type 1 reactions requires special attention because it can develop quickly and is often the main cause of disability in leprosy patients. Early recognition of signs and symptoms of peripheral nerve involvement in Type 1 Reaction is critical to initiating timely treatment, preventing irreversible nerve damage, and ultimately reducing the burden of leprosy-related disability. An in-depth understanding of these clinical manifestations is key in the comprehensive management of leprosy patients, especially during reactive episodes.

Types of Therapy for Leprosy Patients

Table 5. Data on the type of therapy given to leprosy patients with reversal reactions in the Leprosy Division, Skin and Venereology Health Outpatient Installation, Morbus Hansen Division, Dr. Hospital. Soetomo Surabaya for the period 2015 – 2024

Terapi	Tahun										Jumlah	
	2015-2016	%	2017-2018	%	2019-2020	%	2021-2022	%	2023-2024	%	Riil	%
Tanpa OAINS dan kortikosteroid	75	78,94737	48	78,68852	36	81,81818	10	55,55556	2	50	171	77,02703
kortikosteroid	4	4,210526	1	1,639344	1	2,272727	0	0	0	0	6	2,702703
NSAID	5	5,263158	3	4,918033	0	0	0	0	0	0	8	3,603604
NSAID + lamprene	11	11,57895	9	14,7541	7	15,90909	8	44,44444	2	50	37	16,66667
Jumlah	95	100	61	100	44	100	18	100	4	100	**222**	**100**

Based on data from medical records of leprosy patients in the Outpatient Division for Venereal and Skin Diseases, therapy for reversal reaction leprosy sufferers was mostly given without NSAIDs and corticosteroids, namely 171 patients (77.02%), corticosteroids in 6 patients (2.7%), NSAIDs in 8 patients (3.6%) and NSAIDs + Lamprene in 37 patients (16.7%).

Non-steroidal anti-inflammatory drugs (NSAIDs) are a type of anti-pain medication that is very widely prescribed. NSAIDs are so effective in reducing pain that health workers often prescribe NSAIDs without treating the underlying disease and administer NSAIDs long term. However, although NSAIDs are very effective, they have many side effects and can even be fatal. Sometimes inappropriate administration of NSAIDs actually causes patients to experience more serious medical problems due to side effects compared to the main medical problem. Considering this, every health worker needs sufficient knowledge and understanding regarding the use of NSAIDs in daily practice so that patients can obtain maximum benefits without side effects or with minimal side effects.

Mohamad, T. M.-2021; in the literature entitled Prophylaxis in leprosy explains that NSAIDs or Non-Steroidal Anti-Inflammatory Drugs are a type of drug that is useful for reducing inflammation and reducing pain, including muscle and joint pain, headaches and toothache. This drug works by inhibiting chemicals in the body called prostaglandins, which cause pain due to inflammation.

NSAIDs or *Non-Steroidal Anti-Inflammatory Drugs* is a group of drugs that can reduce inflammation and pain. This drug can help treat muscle and joint pain, headaches, migraines, menstrual pain, and various other types of pain. This drug is more effective in treating inflammation because it can suppress the production of prostaglandins and COX-1 and COX-2, namely enzymes that cause inflammation and the resulting pain. Both of these drugs are quite effective in treating pain due to inflammation, although NSAIDs are more effective because they can suppress the production of enzymes that cause inflammation and pain.

Physical Disabilities Suffered by Reversal Reaction Leprosy Sufferers

Table 6. Data on physical disabilities suffered by leprosy patients with reversal reactions in the Leprosy Division, Skin and Venereology Health Outpatient Installation, Morbus Hansen Division, Dr. Hospital. Soetomo Surabaya for the period 2015 – 2024

Cacat Fisik	Tahun										Jumlah	
	2015-2016	%	2017-2018	%	2019-2020	%	2021-2022	%	2023-2024	%	Riil	%
Tidak ada kelainan pada mata	94	98,94737	60	98,36066	44	100	18	100	4	100	220	99,0991
Ada kelainan pada mata	1	1,052632	1	1,639344	0	0	0	0	0	0	2	0,900901
Total	95	100	61	100	44	100	18	100	4	100	**222**	**100**

Data on the distribution of disabilities in leprosy patients in the Leprosy Division, Skin and Venereology Health Outpatient Unit, Morbus Hansen Division, Dr. Hospital. Soetomo Surabaya for the 2015-2024 period, it was found that the majority were patients without disabilities, namely 220 patients (99.1%), and 2 patients (0.9%) had disabilities. Based on this research, it was found that the number of leprosy patients in society tends to decrease significantly, even in Indonesia there is a tendency to reduce the number of leprosy patients.

Preventing and treating physical defects in leprosy sufferers with reversal reactions requires a comprehensive approach, including early diagnosis, adequate anti-inflammatory treatment, physiotherapy, close supervision, and self-care education. Early intervention during episodes of reversal reactions is crucial to prevent the development of permanent physical disabilities that can have a significant impact on the sufferer's quality of life.

4. CONCLUSION

Based on the research results, the number of leprosy patients in the Outpatient Installation for Skin and Venereal Diseases, Morbus Hansen Division, Dr. Hospital. Sutomo Surabaya, based on the results of research on patient medical records for the

period 2015 to 2024, there were 14,056 patients. The number of patients has increased compared to previous years, in the period from January 2011 to 2015 there were 713 patients, in the period from 2010 to 2013 there were 594 leprosy patients and in the period from 2011 to 2013 there were 434 leprosy patients. Overall, research in the period 2015-2024 2015 to 2024 leprosy patients in the Outpatient Installation for skin and venereal diseases, Morbus Hansen Division, RSUD Dr. Soetomo as many as 14,056 new patients, of this number of patients with reversal reactions were 222 patients (0.016% of the total number of patients) while type 2 (*erythema nodosum leprosy*) as many as 13,834 patients (0.98%) confirmed that treatment of leprosy with a reversal reaction requires careful monitoring and multidisciplinary management involving various therapies, including the use of appropriate drugs as well as additional therapy to reduce inflammation and improve the patient's quality of life.

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