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Clinical profile of children with juvenile idiopathic arthritis: A study from a tertiary care center in Uttar Pradesh

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Abstract--Juvenile idiopathic arthritis is a chronic disorder distinguished by continuous joint inflammation; the usual indicators of joint inflammation include pain, swelling and limitation of mobility. "Idiopathic" indicates that we do not know the aetiology of the disease and "juvenile", in this situation, means that the beginning of the symptoms generally occurs before 16 years of age. JIA is categorized into oligoarticular, polyarticular, systemic, psoriatic, enthesitis-related and undifferentiated arthritis. To assist better comprehend JIA for research objectives; generally agreed categorization criteria are

applied. Although these are not diagnostic, they can assist guide physicians when treating a youngster with arthritis. One of the most extensively used categorization criteria was developed by the International League of Associations for Rheumatology (ILAR) in 1995 by expert consensus, and has undergone additional adjustments. In this nation, the number of JIA is huge: the estimated prevalence ranges from 350 000 to 1.3 million. Almost all children with arthritis experience chronic or recurring pain with 70 percent impairment in physical activities. Approximately half of patients with JIA have limited use of upper limbs or hands and difficulty with hand strength. Long durations of active arthritis impede muscle development, resulting in widespread growth retardation, unequal limb lengths, joint degradation and decreased aerobic capacity. Unrecognized, Juvenile idiopathic arthritis has the potential to create long term consequences and have a permanent influence on the physical function, development and quality of life of afflicted children. The purpose of this research was to identify the clinical characteristics of children diagnosed with juvenile idiopathic arthritis (JIA) who were treated in a tertiary care facility in the Indian state of Uttar Pradesh.

Keywords---children, Juvenile idiopathic arthritis, joint inflammation, oligoarticular, polyarticular

Introduction

JIA comprises a number of distinct disease categories, each of which might manifest in a unique manner, exhibit a unique set of clinical signs and symptoms, and in some instances, have a unique genetic basis. Nearly every child diagnosed with arthritis experiences persistent or recurrent pain, which can lead to a reduction in physical activity as well as a restriction in the use of the upper limbs or hands. There is a dearth of data, and the established registries have reported prevalence rates that range from 16 to 150 per 100,000 people. 1 JIA has the potential to cause long-term disability and has the potential to leave a permanent influence on the quality of life of children who are diagnosed with it [1].

Several distinct methods of categorization have been devised up to this point, and more are being developed all the time. The International League against Rheumatism is responsible for developing the categorization that is most frequently accepted internationally (ILAR). In accordance with the categorization provided by ILAR, JIA can be broken down into eight distinct subtypes. However, even though there has been a significant leap forward in the understanding of JIA subtypes, pathobiology, and management, there is still a lot of work to be done. Recent breakthroughs in pharmacologic treatment have produced encouragingly effective outcomes. In spite of the fact that none of the currently available medications has the capability of curing JIA, the prognosis of the disease has significantly improved over the course of the last few decades as a direct result[2]. It is possible that early therapies with disease-modifying anti-rheumatic medicines can help reduce the amount of joint damage and enhance the number

of patients who achieve remission. Nevertheless, the usage of such pharmaceuticals can be difficult, particularly in terms of determining the correct dosage and keeping an eye out for any potentially harmful effects in children. In addition, there is a lack of information regarding the long-term impact that these drugs have on children.

How exactly is it identified?

The existence and continuation of arthritis are required for a diagnosis of juvenile idiopathic arthritis (JIA). Additionally, the patient's medical history, physical examination, and laboratory testing must be thoroughly evaluated to ensure that no other diseases are present. It is determined to be juvenile idiopathic arthritis (JIA) if symptoms appear before the patient is 16 years old, the symptoms continue for more than six weeks, and all other diseases that could be the cause of arthritis have been ruled out.

This time frame of six weeks has been established in order to rule out the possibility of other forms of transitory arthritis, such as those that may be caused by a variety of infections. The term juvenile idiopathic arthritis (JIA) refers to all forms of chronic arthritis that have an unknown cause and an onset in childhood. The JIA encompasses the many distinct types of arthritis that have been characterized. The diagnosis of juvenile idiopathic arthritis is therefore based on the presence and persistence of arthritis, in addition to the careful exclusion of any other disease through evaluation of the patient's medical history, physical examination, and laboratory tests [3].

Different types of JIA

There are a few different kinds of JIA. They are separated from one another primarily by the number of joints that are afflicted (for example, oligoarticular JIA affects less than 5 joints, while polyarticular JIA affects 5 or more joints), as well as by the presence of additional symptoms such as fever, rash, and others (see following paragraphs). During the first six months of the condition, careful observation of the symptoms is required in order to arrive at an accurate diagnosis of the various kinds. As a consequence of this, you could also hear people refer to them as onset-forms [4].

Systemic forms of JIA

When we talk about arthritis being systemic, we are referring to the possibility that other organs in the body, in addition to the joints, are affected. Systemic JIA is characterized by the presence of fever, rash, and acute inflammation of numerous organs of the body, which may emerge before arthritis or during the course of arthritis. Other symptoms of systemic JIA include an increased risk of developing arthritis. There is a persistently high fever, as well as a rash that manifests itself most prominently during episodes of elevated temperature. Muscle soreness, an enlarged liver, spleen, or lymph nodes, and inflammation of the membranes that surround the heart and lungs (pericarditis) are some of the additional symptoms that may be present (pleuritis). Arthritis, which often affects five joints or more, may already be present when the disease first manifests itself,

or it may not show up for several weeks. The condition may afflict males and girls at any age, although it is most common in toddlers and preschool children [5].

Roughly half of individuals experience only brief bouts of fever and arthritis; the prognosis for these people is generally the most favorable over the long term. In the other half, fever typically begins to abate, but arthritis becomes increasingly problematic and can be challenging to manage in certain cases. Fever and arthritis continue to be co-occurring conditions in a subset of these patients. Systemic JIA accounts for less than 10 percent of all instances of JIA; it is more common in children and is seldom seen in adults. Typical symptoms of systemic JIA include fever, rash, and joint pain.

Polyarticular JIA

The involvement of five or more joints during the first six months of the disease in the absence of fever is characteristic of polyarticular juvenile idiopathic arthritis (JIA). There are blood tests that analyze rheumatoid factor (RF), and these tests can differentiate between two kinds of juvenile idiopathic arthritis: RF negative and RF positive JIA. This kind of juvenile idiopathic arthritis (JIA) is extremely uncommon in youngsters (less than 5 percent of all JIA patients). Rheumatoid arthritis in adults with a positive RF test describes this condition (the most common type of chronic arthritis in adults). It generally produces symmetrical arthritis affecting initially mainly the tiny joints of the hands and feet and then expanding to the other joints. The beginning of symptoms often occurs after the age of ten and is significantly more common in females than in boys. In many cases, it manifests as a severe form of arthritis. RF-negative polyarticular JIA is estimated to account for 15–20 percent of all instances of JIA. Children of any age can be affected by this condition, and in most cases, both major and small joints are afflicted. It can affect any joint in the body [6].

Treatment must be arranged as soon as possible, as soon as the diagnosis is confirmed, for either form of the disease. It is generally accepted that more favorable outcomes can be achieved through timely and adequate therapy. Despite this, it can be challenging to anticipate how a patient will react to treatment in the early phases of the process. The degree to which each child responds to treatment varies substantially from case to case.

Oligoarticular JIA (persistent or extended)

The most common form of JIA is called oligoarticular JIA, and it accounts for roughly half of all cases. It is distinguished by the presence, in the first six months of the disease, of fewer than five affected joints in the absence of systemic symptoms. This is the defining characteristic of psoriatic arthritis. Asymmetrical pain is experienced in major joints (such the knees and ankles) as a result of this condition. There are times when only one of the joints is afflicted (monoarticular form). Extended oligoarthritis is the term used to describe the condition that occurs when the number of afflicted joints increases to five or more after the initial six months of disease progression in some people. Persistent oligoarthritis is the medical term for the condition in which the number of affected joints is lower than five throughout the course of the disease. Oligoarthritis is

characterized by an early onset, typically occurring before to the age of 6, and is more common in females. Patients whose condition is confined to only a few joints have a better chance of a favorable prognosis for their joints if they receive quick and adequate therapy. However, the prognosis for patients whose articular involvement spreads and they develop polyarthritis is more uncertain.

It is possible for a sizeable percentage of people to suffer issues involving their eyes, such as inflammation of the eye (anterior uveitis). Chronic iridocyclitis or chronic anterior uveitis is both names for the same issue. This is due to the fact that the anterior section of the uvea is formed by the iris and the ciliary body. In the case of JIA, this is a persistent disorder that creeps up on patients without eliciting any obvious signs or symptoms (like pain or redness). In the event that it is not diagnosed and treatment is not sought, anterior uveitis can worsen and lead to extremely serious damage to the eye. Because of this, having a prompt diagnosis of this condition is of the utmost importance. It is possible that parents or physicians will not discover that their child has anterior uveitis since the eye does not grow red and the youngster does not complain of having blurry vision. Early start of juvenile idiopathic arthritis (JIA) and a positive ANA test are risk factors for developing uveitis (Anti Nuclear Antibody). Therefore, it is absolutely necessary for pediatric patients at high risk to undergo routine eye exams performed by an ophthalmologist with the assistance of a specialized instrument called as a slit lamp. Exams should typically be performed once every three months, and this frequency should be kept up over the long run [7].

Psoriasis Arthritis

The presence of arthritis in conjunction with psoriasis is what distinguishes psoriatic arthritis from other forms of arthritis. Psoriasis is an inflammatory skin disease characterized by patches of flaky skin, which most frequently appear on the knees and elbows. Psoriasis can sometimes be limited to just the nails, or it can run in families. In either case, a family history of the condition should be investigated. It's possible that the skin illness came first, or that arthritis came after it. Nail alterations and finger or toe swelling, also known as "sausage finger" or dactylitis, are two of the most common symptoms associated with this subtype of juvenile idiopathic arthritis (JIA) (pitting). It is also possible for psoriasis to be present in a first-degree relative, which is defined as a parent or a sibling. Because of the potential for the development of chronic anterior uveitis, it is essential to have routine eye exams [8]. The disease's prognosis is unpredictable because patients with skin disease and those with joint disease often react differently to treatment. The treatment for a child with arthritis that affects fewer than five joints is the same as the treatment for the oligoarticular type of arthritis. The treatment for the child is the same as that used for the polyarticular forms if the child has more than 5 joints that are affected. It's possible that the outcome is connected to how well the treatment worked for both psoriasis and arthritis.

Arthritis associated with Enthesitis

The most prevalent symptoms are arthritis, which mostly impacts the major joints of the lower limbs, and enthesitis, which affects the tendons. Enthesitis refers to inflammation that occurs at the "enthesis," which is the site at which tendons

attach to bones (the heel is an example of enthesitis). The presence of localized inflammation in this region is typically accompanied with excruciating pain. The soles of the feet and the heels are the most prevalent places to experience enthesitis because this is where the Achilles tendons insert. These people can occasionally develop an acute case of anterior uveitis. In contrast to uveitis caused by other types of JIA, the typical presentation of this condition includes lachrymation, or watery eyes, as well as an enhanced sensitivity to light. The majority of patients have positive results for a laboratory test that is called HLA B27. This test determines whether or not there is a family history of the disease. In this variety, men are more likely to be affected than women, and the onset of arthritis typically occurs after the age of six. The progression of this form might take a variety of forms. In some people, the condition goes into remission over time; however, in others, it progresses and spreads to the lower spine as well as the sacroiliac joints, which are connected to the pelvis and restrict the patient's ability to move their back. Pain in the lower back that is evident in the morning and that is accompanied by stiffness is highly symptomatic of inflammation of the spinal joints. In point of fact, this kind is quite comparable to one of the spine disorders that affects adults and is known as ankylosing spondylitis [9].

Treatments

Treatments for JIA are aimed at reducing discomfort and inflammation while also improving strength and preventing additional damage to the joints. Medication, physical activity, and occupational therapy are among forms of treatment that may be considered.

Medications such as the following can be used to treat JIA:

DMARDs, which stand for disease-modifying anti-rheumatic drugs: By preventing further damage to the joints, disease-modifying anti-rheumatic drugs (DMARDs) alter the way arthritis manifests itself in the body [10]. JIA is typically treated with methotrexate, which is a DMARD. Sulfasalazine and leflunomide are two more categories of this drug.

Corticosteroids can be given to patients in a variety of ways, including by injections, topical ointments, or oral pills prescribed by a medical professional. However, oral corticosteroids can have negative consequences, such as a weakening of the bones, particularly with continuous usage of the medication. Because of this, most medical professionals aim to limit their long-term use because it can have an impact on the development of a kid.

The acronym NSAID stands for non steroidal anti-inflammatory medication. Even though their primary effect is to alleviate pain, non steroidal anti-inflammatory drugs (NSAIDs) do not halt the progression of joint inflammation and arthritis (JIA). While others can be purchased without a doctor's prescription, others can only be obtained with one. Ibuprofen and naproxen are two examples of NSAIDs that can be found in topical preparations that can be applied topically. Because NSAIDs might cause nausea and stomach discomfort in some people, it is important for those people to eat before taking the medication.

Biological DMARDs, also known as biological modifying agents: These go against the proteins in the immune system that are directly responsible for inflammation. In order to treat severe cases of arthritis in children, medical professionals may choose to inject biological modifying drugs under the skin or provide them intravenously [11]. When taking biological agents, people should exercise caution because they have the potential to suppress the immune system and increase the prevalence of illnesses. Some examples of biologic DMARDs include:

- Infliximab
- Adalimumab
- Etanercept
- Abatacept
- Anakinra
- Rilonacept
- Tocilizumab

Injections into the joints

Injections into the joint(s) may be administered if the kid is experiencing a great deal of discomfort and/or if there is inflammation in one or more of the joints that is preventing the joint from moving normally. The corticosteroid medication that is injected is a formulation that has a prolonged effect. Because of its lasting action (which can last for several months), triamcinolone hexacetonide is the medication of choice because its absorption into the body's circulation is quite low. It is the therapy of choice for oligoarticular illness and is utilized in combination with other medications in the treatment of the other kinds of JIA. This method of treatment can be carried out multiple times on the same joint if necessary. Depending on the age of the kid, the kind of joint, and the number of joints that need to be injected, the joint injection can be conducted using either local anesthesia or general anesthesia (typically in the younger age) [12]. This is determined by the number of joints that need to be injected. It is generally not recommended to receive more than three to four injections in the same joint within a single year. Joint injections are typically administered in conjunction with other treatments in order to achieve a rapid improvement in pain and stiffness. Alternatively, injections may be used as "bridging agents" prior to the initiation of other medications, the effects of which may not be felt for several weeks.

Figure 1: Bony overgrowth at the right knee in a child with JIA



Objective of the study

- 1) To recognize the symptoms and signs of JIA and rule out other conditions that may present similarly;
- 2) To provide all-encompassing care for patients who have JIA.

Methodology

The Mithraj Super multispecialty Tertiary care centre was the location of the cohort descriptive study that was conducted there. Patients who presented themselves to the specialized paediatric rheumatology clinic between January 2018 and December 2021 were included in this study. The files were looked over in retrospect, and information was gathered using a standardized proforma that had been prepared specifically for the study. As a result, a total of 54 instances were included in the study. A comprehensive clinical examination, including a check of the patient's musculoskeletal system, was carried out by the treating physician after a thorough history was gathered from the patient as well as from their parents or legal guardians. Patients who met the criteria of juvenile idiopathic arthritis as established by the International League of Associations for Rheumatology (ILAR) were subsequently enrolled in the study. Children suffering from arthritis for reasons other than those listed were not included [13].

Patients were then further classified in accordance with the ILAR classification of the disease into polyarticular rheumatoid factor positive or negative, oligoarticular persistent and extended, systemic-onset, psoriatic, enthesitis-related, and undifferentiated JIA subtypes depending upon the number of joints involved and other systemic features that were included in the study.

Statistical Package for the Social Sciences (SPSS) version 19.0 was utilized throughout the data entry, validation, and analysis processes. When expressing numerical variables, the mean and standard deviation were utilized, and when expressing categorical variables, frequencies and percentages were utilized.

Results

It was found that out of 50 children, 20 (40%) were younger than 8 years old, whereas 20 (60%) were older than 8 years old. The ages of the children ranged from 0 to 19. The proportion of male children was 46.0%, whilst the proportion of female children was 54%. (Table 1).

Table 1: The number of children with JIA by age and sex

Variables		Number of patients	Percentage
Age	<8 years	20	40.0%
	>8 years	30	60.0%
Sex	Male	23	46.0%
	Female	27	54.0%

It was observed that the systemic onset type of arthritis (40 percent) was the most prevalent kind of the disease, followed by the polyarticular type (62.0 percent), and then the oligo articular type (8.0 percent) (46.0 percent). In terms of clinical characteristics, the youngsters all presented with the same complaint, which was joint pain. Ninety-six percent of the children had a fever, 38 percent of the children had rashes, and 16 percent of the children had hepatomegaly. Ninety percent of the children exhibited joint swelling, and 22 percent of the youngsters exhibited lymphadenopathy.

It was found that practically every joint was affected in the population that was under investigation. The knee was the most frequently affected joint, accounting for 88.0% of cases. 78.0 percent had symptoms involving the wrist. In 44.0 percent of the cases, there was involvement of the ankle [14]. Involvement of the elbow was found in 38.0 percent of youngsters. There was a sign of involvement in the smaller joints as well. Additional joints that were affected include the Meta carpophalangeal (86.0 percent), proximal interphalangeal (64.0 percent), and Meta tarsophalangeal (64.0 percent) joints. In a few instances, patients also presented with hip, shoulder, and cervical joint problems (Table 2).

Table 2: The distribution of JIA based on how it was presented.

Variables		No. of patients	Percentage %
Type	Oligoarticular	23	46.0%
	Polyarticular	31	62.0%
	Systemic onset	35	70.0%
	Fever	48	96.0%
	Rash	19	38.0%
	Hepatomegaly	08	16%
	Joint pain	45	90%

Symptoms	Joint swelling	34	68.0%
	Lymphadenopathy	11	22%
	Pericarditis	02	4%
	Uveitis	03	6%
Joint involvement	Cervical	7	14.0%
	Shoulder	3	6.0%
	Elbow	19	38.0%
	Wrist	39	78.0%
	Metacarpophalangeal	43	86.0%
	Proximal interphalangeal	32	64.0%
	Hip	5	10.0%
	Knee	44	88.0%
	Ankle	22	44.0%
Metatarsophalangeal	32	64.0%	

Table 3: The breakdown based on the scale of the Childhood Health Assessment Questionnaire.

Variables	First visit		After one year	
	No. of	% patients	No. of	% patients
Inactive	9	18.0	13	26.0
Mild	15	30.0	18	36.0
Moderate	13	26.0	14	28.0
Severe	3	6.0	4	8.0

During the initial visit, children had their functional status evaluated with the help of the Health Assessment Questionnaire, and they were given a grade based on the results [15]. It was observed that 18.0 percent of children did not have any form of disability, 30.0 percent of children had a light form of impairment, 26.0 percent of children had a moderate form of disability, and 6.0 percent of kids had a severe form of disability. 10 patients, or 20.0 percent, were excluded from the study because they were younger than 3 years old. The standard deviation of the mean score was 0.43. One year later, none of them displayed major signs of disability. There was no disability detected in 26.0 percent of patients, mild disability was discovered in 36.0 percent of cases, and substantial disability was found in 28.0 percent of cases. 1.79 points, with a standard deviation of 0.66.

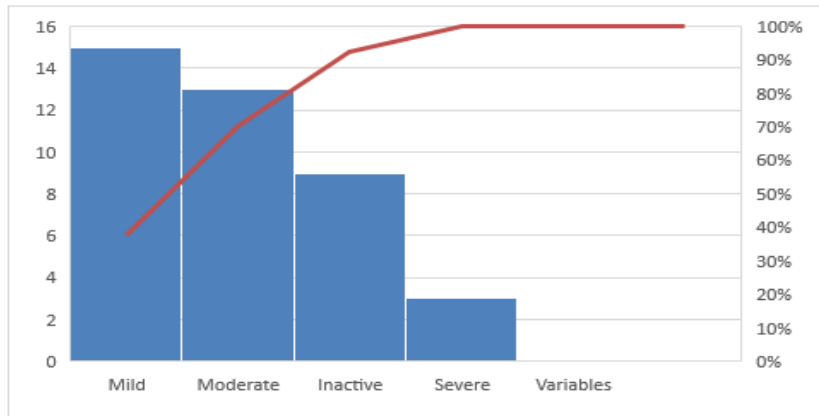


Figure 2: How the scale of the Childhood Health Assessment Questionnaire was used to divide the groups.

The illness activity index was also calculated during the course of the trial, and the researchers found that 50 percent of participants exhibited only mild disease activity, 40 percent exhibited moderate activity, and 10 percent exhibited severe disease activity. The standard deviation of the mean score was 0.89. After a length of time equaling one year, not a single child exhibited significant illness manifestations [16]. 72.0 percent of cases were considered to have mild disease activity, while 16.7 percent were considered to have moderate disease activity. It was observed that the mean score was 1.99 with a standard deviation of 0.88.

Table 4: Distribution by disease activity index le.

Variables	First visit		After one year	
	No. of patients	% patients	No. of patients	% patients
Mild	25	(50.0%)	36	72.0 %
Moderate	20	(40.0%)	13	26.0%
Severe	5	(10.0%)	1	2.0%

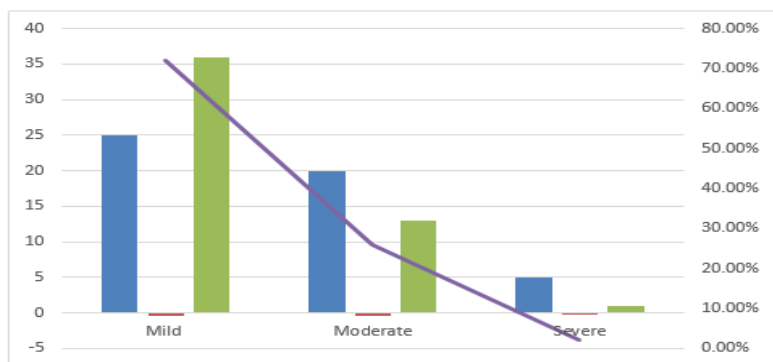


Figure 3: Distribution based on how active the disease is.

Discussion

The majority of the children who were affected were found to be younger than eight years old, as was observed. In the current investigation, there were more male participants (46.0 percent) than female participants (54.0 percent) [17] [18]. This was at the same time as two studies that had been conducted in India by Gurkirpal et al. and Surjit Singh et al. The current study found that systemic onset arthritis was the most common type of arthritis, followed by polyarticular arthritis as the second most common type. Oligoarticular was found to be the most common type in previous studies carried out by Singh et al. and Sircar et al., but these findings contradict those findings.

In terms of clinical characteristics, the children all presented with the same complaint, which was joint pain. Ninety-six percent of the children had a fever, 38 percent of the children had rashes, and 16 percent of the children had hepatomegaly. There was swelling present in the joints of 68.0% of the children, and 22.0% of the children had lymphadenopathy. None of them required the use of the heart and the eyes. It was found that almost every joint was affected in the population that was under investigation. The knee was the most frequently affected joint, accounting for 88.0% of cases. 78.0 percent had symptoms involving the wrist. In 44.0 percent of the cases, there was involvement of the ankle. Involvement of the elbow was found in 38.0 percent of children. There was evidence of involvement in smaller joints as well, such as the metacarpophalangeal joint (in 86.0 percent of cases), the proximal interphalangeal joint (in 64.0 percent of cases), and the metatarsophalangeal joint in 64.0 percent of cases [19]. In a few of the cases, there was also involvement of the hip, shoulder, and cervical joints. During the initial visit, the children's functional status was evaluated using a childhood health assessment questionnaire. It was observed that 18.0 percent of children did not have any form of disability, 30.0 percent of children had a mild form of disability, 26.0 percent of children had a moderate form of disability, and 6.0 percent of cases had a severe form of disability. 10 (20.0 percent) of the patients did not qualify because they were younger than 3 years old. The standard deviation of the mean score was 0.43. The standard deviation of the mean score was 0.43. One year later, none of them displayed severe signs of disability. There was no disability

found in 26.0 percent of cases, mild disability was found in 36.0 percent of cases, and moderate disability was found in 28.0 percent of cases. 1.79 points, with a standard deviation of 0.66[20]

The progression of the disease, the patient's quality of life, and the functional outcome

Over the course of the past three decades, there has been significant development in the treatment of JIA. The clinical outcomes have significantly improved, with the majority of patients now having the potential for disease control and remission. Despite this, a sizeable percentage of patients are experiencing ongoing manifestations of the disease. In point of fact, active treatment is still required for approximately half of patients into adulthood, whereas complete remission is only achieved in approximately 20–25 percent of patients [21]. Because of the use of biological agents, the mortality rate associated with JIA has dropped from 1 to 4 percent in the 1970s to between 0.3 and 1 percent in 2016. The Steinbrocker functional classification scale has been updated to reflect the improved clinical outcomes in the field of physical disability. 15 percent of JIA patients fell into Class III (limited to few or no activities of the patient's usual occupation) or Class IV (bedridden with little or no self-care) between the years 1976 and 1994, but only 5 percent did so in 2002. Class III patients were limited to few or no activities of the patient's usual occupation. However, joint damage that occurred before treatment led to surgical intervention in 14% of patients. This highlights the importance of beginning early aggressive treatment in order to achieve complete remission. The presence of systemic manifestation is the primary factor that plays a role in determining the outcome of treatment. Patients diagnosed with MAS have an approximately 8 percent chance of passing away as a result of multi organ failure. In light of its status as the most common extra articular manifestation in children, JIA-associated uveitis has emerged as the leading cause of vision impairment, and furthermore, approximately half of these patients continue to struggle with active uveitis into adulthood. Even when the disease is under control, a patient with JIA continues to have an increased likelihood of developing osteoporosis and, as a result, fractures in early adulthood. The prognosis for JIA patients in the long run is contingent on the subtype of the disease as well as the disease activity, which may continue to be elevated for many years, even into adulthood. Approximately fifty percent of patients diagnosed with JIA will experience active disease during the early adult years, and approximately thirty percent will be affected by some form of disability. Researchers Salvage et al. (2016) reported a remission rate of 59 percent in patients with JIA after 30 years, but they also noted the low quality of life in adults who have JIA. Co morbidities and complications highlight the status of juvenile idiopathic arthritis as the most important pediatric rheumatological pathology [22]. JIA is a condition that can continue throughout life with remissions and flares, leading to impairment of connective tissue and a reduction in the quality of life. More research in the field of discovery science is required in order to improve our understanding of the intricate workings of the inflammatory process and to pave the way for the creation of therapies that hold the potential to bring about a complete recovery from the condition[23][24].

Conclusion

The most common form of persistent arthritis found in children is called juvenile idiopathic arthritis (JIA). It includes a wide variety of arthritis subtypes, which can span the spectrum from a relatively minor condition to a debilitating one. The treatment of juvenile idiopathic arthritis (JIA) has undergone significant development over the past 15 years, particularly with the introduction of biologic medications, which have significantly improved the prognosis for children afflicted with this disease. Even though the research that has been done up until this point has demonstrated that biologic agents are, on the whole, safe, only large-scale data collections will be able to define the long-term safety profiles of biologic agents, particularly the risk of cancer. Research that is currently being conducted in the fields of genetics and immunology will help link the immuno pathogenesis to the clinical phenotypes, which should make it easier to revise the classification criteria. It is possible that the discovery of new biomarkers, in conjunction with the creation of more accurate outcome measures and the improvement of imaging techniques, will foster the implementation of targeted therapies and personalized therapeutic interventions. The ultimate goal of these efforts is to increase the number of patients who achieve remission while simultaneously reducing the amount of disease damage and treatment-related side effects. Knee joint involvement was the most common, despite the fact that all joints were affected. The childhood health assessment questionnaire, which was used for the assessment of the functional status, and the Disease activity index were both straightforward instruments that demonstrated a strong capacity to forecast the outcome of the disease. Therefore, the childhood health assessment questionnaire can be useful for assessing the functional disability and also for measuring the outcome of treatment. [Cause and effect]

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