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RESEARCH ARTICLE

EFFECTIVENESS OF PASSIVE STRETCHING IN TREATING JUVENILE IDIOPATHIC RHEUMATOID ARTHRITIS- A CASE STUDY

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Abstract

Background: Rheumatoid Arthritis (RA) a systemic autoimmune disease characterized by inflammatory arthritis and extra-articular involvement. It is a chronic inflammatory disease that mostly affects the synovial joints.A diverse subset of idiopathic inflammatory arthritis that affects children under 16 and lasts for six weeks or more is known as juvenile idiopathic arthritis (JIA).

Methodology:A 15-year-old female had juvenile idiopathic arthritis with medical treatment, there was no reduction of pain and led to difficulties in her ADL with restricted joint mobility and reduced ROM. Whereas she was evaluated and treated with specific physiotherapeutic measures for eight months period seven days in a week with specific stretching exercises.

Result: The significant difference were reported from the pre and post test values of pain and also functional improvement with regards to kartz index

Conclusion: Passive stretching, when implemented as part of a comprehensive physiotherapeutic approach, can effectively alleviate the symptoms and improve the quality of life.

Introduction:-

Rheumatoid Arthritis (RA) a systemic autoimmune disease characterized by inflammatory arthritis and extra-articular involvement. It is a chronic inflammatory disease that mostly affects the synovial joints and is frequently brought on by the interplay of genes and environmental factors, such as tobacco.

RA often begins in small peripheral joints, is symmetric, and eventually affects proximal joints. With time, joint inflammation causes bone erosion and cartilage loss, ultimately resulting in joint degeneration.

Early diagnosis of rheumatoid arthritis is difficult because there is no pathognomonic laboratory test for the condition. In order to diagnose the condition and avoid permanently damaging the joints, a thorough clinical approach is necessary. Patients with rheumatoid arthritis need to be treated with both pharmaceutical and non-pharmacological therapies.

Currently, early treatment with disease-modifying anti-rheumatic medications is the mainstay of care. Many patients experience considerable morbidity and disability over time, even with treatment. To enhance clinical outcomes, a thorough combination of pharmaceutical and non-pharmacological treatment (physical therapy, counseling, and patient education) is needed.

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Genetics has a major role in the etiology of RA. It is believed to be the outcome of the interaction between environmental influences and the genotypes of the patients.

A diverse subset of idiopathic inflammatory arthritis that affects children under 16 and lasts for six weeks or more is known as juvenile idiopathic arthritis (JIA). Since 1995, the terms juvenile chronic arthritis (JCA), juvenile rheumatoid arthritis (JRA), and juvenile idiopathic arthritis (JIA) have been used to refer to chronic arthritis in children.

The International League of Associations for Rheumatology (ILAR) consensus conference in 2001 identified seven JIA categories: oligoarthritis, systemic arthritis, psoriatic arthritis, enthesitis-related arthritis, rheumatoid factor (RF) positive polyarthritis, RF negative polyarthritis, g) undifferentiated arthritis.

Different phenotypes, genetic predispositions, pathophysiology, test results, illness course, and prognosis are all present in these subtypes. While all kinds of arthritis require chronicity, each particular subtype was distinguished by extraarticular and systemic symptoms.The Pediatric Rheumatology International Trial Organization (PRINTO) has just suggested and is formally validating a new preliminary data-driven classification for JIA.

It's yet unknown what causes or triggers persistent arthritis in JIA. It is hypothetical that an individual who is genetically sensitive will experience aberrant immune responses as a result of combinations between environmental factors. Breastfeeding and having siblings in the same home are potential protective factors, while other environmental factors including antibiotic exposure and C-section deliveries are potential dangers. Microorganisms such enteric bacteria, Epstein-Barr virus, Parvovirus B19, Chlamydophila pneumoniae, and streptococcal infections still have unclear significance.

Anti-inflammatory and immune modulatory medications, physical therapy, and eventually surgery, nutritional support, and psychosocial support may be required for the treatment of juvenile idiopathic arthritis (JIA). The illness subtypes, damage and severity of the condition, related diseases, and family acceptance all influence the pharmaceutical therapy option. For all subtypes, non-steroidal anti-inflammatory medications (NSAIDs) are the cornerstone of the first line of treatment for symptoms. With the advent of more aggressive modern treatments like methotrexate and biologics, the usage of NSAIDs in JIA has gradually declined.

The goal of physical therapy is to maximize range of motion while minimizing joint stress. Often, swimming is a good choice. Exercises for moderate fitness, flexibility, and strengthening should be done by patients.

In rehabilitation therapy, passive stretching is a common mechanical stimulation used to keep muscles flexible, minimize muscle shortening, and preserve joint mobility. According to certain research, passive stretching can cause muscle hypertrophy by inducing processes that involve protein synthesis, mechanically triggered ion channels, satellite cells and myogenic growth hormones, and anabolic signaling. It is used to avoid muscular disuse or improve recovery from prolonged inactivity. Compared to resistance exercise, it is performed at a relatively low risk of damage and at a comparatively modest intensity.The purpose of this study is to determine whether passive stretching can effectively reduce pain and enhance a patient's overall performance in juvenile arthritis.

Aim Of The Study:
The purpose of the study on the usefulness of passive stretching for juvenile arthritis is to find out how passive stretching exercises affect children with juvenile arthritis's overall functional results, joint mobility, and pain management.

Need For The Study:
The dearth of information on the particular effects of passive stretching in this demographic is what made this study necessary. By looking at how beneficial passive stretching is, we can offer caregivers and medical professionals evidence-based suggestions for include passive stretching activities in the treatment of juvenile arthritis. By shedding light on the possible advantages of passive stretching as a therapeutic intervention, this study will add to the body of knowledge already in existence and aid in raising the standard of care for children with juvenile arthritis.

Methodology:-

STUDY DESIGN :Single case Experimental Study

STUDY TYPE :case study

SAMPLE SIZE : 01

STUDY DURATION : 8 months

STUDY SETTING : Hill top residency, suncity, Hyderabad, India

Inclusion Criteria:
- Female subject
- 15 years of age
- Juvenile idiopathic rheumatoid arthritis

Exclusion Criteria:
- Male Subjects
- Subjects below and above 15 years of age
- Subjects with other Arthritic Conditions
- Subjects with systemic illness

Outcome Measures:
- Katz Index(Activity of daily living)
- Pain (NPRS)

Case Description:
A 15-year-old female came to OPD with a complaint of severe pain in the right and left shoulder joints, elbow, wrist, fingers and knee. She had a complaint of difficulties in her daily activities such as brushing, dressing etc. She also had difficulty in sitting for extended periods of time, also had difficulty in standing and walking. The subject had previously experienced typhoid fever in the second week of February 2021 she also experienced deconditioning, fatigue, restricted mobility, lack of appetite. She was under medications (analgesics and anti-inflammatory drugs) for a week but there was no improvement.

She had no family history of Rheumatoid arthritis. She had history of mental trauma and depression due to sudden demise of her elder sister. She had a history of pain with the rating 9/10 at both upper and lower extremities aggravating during movement also had generalized body pain. Patient was advised to undergo diagnostic test for seronegative polyarthritis and was confirmed for the same by the rheumatologist. Upon assessment she had restricted joint mobility, poor functional capacity, mild stooping posture(bilateral flexed elbows, fingers, knees and hip). Upon examination she had limited ROM, reduction in joint mobility and decreased muscle strength. The subject is currently receiving guidance for physical therapy in addition to medications (disease-modifying anti-rheumatic drugs).

Procedure:
A 15 year old female subject who was diagnosed with juvenile rheumatoid arthritis was treated with passive stretching. The subject was completely done with the assessment and was included in this study. This subject was treated with ankle knee hip and shoulder stretching exercises for one hour daily 7 days in a week for period of eight months.During the first few sessions, the subject's ankle and knee pain was reduced with an emphasis on stretching and with Transcutaneous Electrical Nerve Stimulation (TENS). Patient confidence in therapy increased, and some degree of pain alleviation was observed.

In the subsequent session, which concentrated on hip and shoulder stretches, the patient demonstrated a sufficient increase in range of motion and a noted decrease in pain.The individual was able to stand and walk for a brief distance during the last few sessions, which were centered on strengthening trunk stability and core stability exercises and increasing posture and functional activity.

Result:-

Table 1:-

	Pre test	Post test
NPRS	9	2
KATZ Index	2	6

As shown in table 1 significant difference were reported from pre and post test values about 80% of pain reduction in NPRS and there is also a significant functional improvement with values of pre and posttestKatz index.

Discussion:-

Passive stretching has been examined for its efficacy in the treatment of juvenile idiopathic rheumatoid arthritis, as demonstrated in a case study. Juvenile idiopathic arthritis (JIA) is a form of idiopathic inflammatory arthritis that primarily affects individuals under the age of 16, lasting for a minimum of six weeks. This condition involves chronic inflammation of the synovial joints and often leads to restricted joint mobility and a reduction in range of motion. In this particular case study, a 15-year-old female patient with juvenile idiopathic arthritis experienced no pain reduction despite undergoing medical treatment. As a result, she faced difficulties in carrying out her daily activities due to limited joint mobility and reduced range of motion.However, she was subsequently evaluated and treated with specific physiotherapeutic interventions, including targeted stretching exercises, for a duration of eight months. These interventions were performed seven days a week.

The outcome of the treatment demonstrated noteworthy improvements in the patient's condition. As a result, it can be concluded that passive stretching, when implemented as part of a comprehensive physiotherapeutic approach, can effectively alleviate the symptoms and improve the quality of life.

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