



STUDY ON NEUROFIBROMATOSIS, SCOLIOSIS, AND KYPHOSIS

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ABSTRACT

The current study was conducted in order to develop a better understanding of neurofibromatosis, scoliosis, and kyphosis as well as the treatments used for them and the similarities amongst them. The current study utilizes a qualitative framework for its methodology. The following paper uses a review of literature in order to better understand neurofibromatosis, scoliosis, and kyphosis so as to better understand which treatment is more sufficient than the other and the similarities or dissimilarities between these three disorders. The findings of the current study are presented in the conclusion section with a discussion on the results, followed by recommendations for future researchers. The qualitative framework was highly helpful and reliable in terms of the current research due to the nature of the study as well as the need for reliable academic research. All academic sources were gathered via a selection criterion that is mentioned in the methodology section.

INTRODUCTION

While medicine has progressed greatly over the last hundred years, there are numerous diseases and disorders that continue to haunt humanity. While many of these diseases are treatable and can be cured, some, unfortunately, cannot. The current paper takes the liberty of discussing three physical conditions; Neurofibromatosis, Scoliosis, and Kyphosis. This discussion is based on secondary data gathered from scholarly journals, websites, articles, etc. Research that was published in the last five years was chosen in order to improve the findings of the current writing as well as its contribution.

Neurofibromatosis

The first condition being investigated is that of neurofibromatosis, also known as NF. This disorder accompanies three conditions during the nervous system is infested with tumor growth (Le, Castelli, Perrin, Henaux, & Noël, 2016). Currently, three types of neurofibromatosis conditions are known of. These include Schwannomatosis and type I and type II neurofibromatosis (Le, Castelli, Perrin, Henaux, & Noël, 2016). In the first type of neurofibromatosis, or type I, general symptoms involve scoliosis, the skin being covered in certain areas with light brown spots, the nerves showing slight bumps, and the groin and armpits developing freckles (Gutmann, et al., 2017).

In the second type of neurofibromatosis, patients can

experience muscle wasting, loss of hearing, skin flaps that are flesh coloured, cataracts at an early age, and loss or issues in keeping balance. While the term tumor may now be synonymous with cancer and related diseases, the tumors present in neurofibromatosis are non-cancerous (Le, Castelli, Perrin, Henaux, & Noël, 2016). Generally, the disorder is caused by genetic mutation. This can be caused by early spontaneous development or be inherited from one's parents. Schwannomatosis and type II neurofibromatosis tumors are generally of Schwann cells.

Treatment

No single cure or prevention for neurofibromatosis currently exists. If tumors become cancerous or cause issues, surgery can be a form of cure (Gutmann, et al., 2017). If cancer occurs, Chemotherapy and Radiation can be utilized. Auditory brainstem implants or cochlear implants can be used to cure loss of hearing. While surgery is a possible cure, the risks involved in attempting surgery on a patient with neurofibromatosis need to be evaluated (Merker, et al., 2018). While these treatments are viable options for many, radiotherapy is not advised by most academics, particularly for children with neurofibromatosis (Gutmann, et al., 2017). Authors such as Merker, et al. (2018) recommend that children be diagnosed annually and evaluated in order to measure changes or growth in the disorder.

Recently, the FDA allowed selumetinib, a new

investigational therapeutic agent, for treating patients who are older than or equal to three years old and have inoperable, symptomatic, or progressed type I neurofibromatosis (Astor, 2019). When the strand is compressed because of the development of kyphotic deformation that is progressing, the treatment has to be comprised of the vertebrectomy decompressing the anterior in the deformation concavity, followed by a fusion of the peripheral bone. The laminectomy has shown that the angular pressure on the spinal cord is ineffective (Gutmann, et al., 2017). Semi-dependent preoperative traction may be considered in a seemingly edged, augmented, flexible kyphotic x-ray with attendant neurological damage to maximize the correction curve of anterior decompression and facilitate the generation of a leg transplant (Astor, 2019).

Intraspinal tumors may contribute to spinal cord involvement and neurology, especially in the elderly (Betz, 2018). The treatment is comprised of a laminectomy in connection with a resection tumor. The removal of the lesion has to be done alongside prophylactic instruments and spine fusion to alleviate the decompressed segments of the vertebral and prevent the development of kyphosis after laminectomy.

Scoliosis

The second medical condition being discussed in the current paper is that of scoliosis, which is when the individual's spine curves sideways (Gorsha, Aplevich, & Zukow, 2017). This curve generally, over three dimensions, takes the shape of a "C" or an "S" (Sharma, et al., 2015). In his manner, the curve of the spine may not be stable in certain area and be stable in others, with instability increasing over time if left untreated (Gorsha, Aplevich, & Zukow, 2017). On one hand, severe scoliosis can lead to breathing issues, while its mild form may not be noticeable to the individual suffering from it until much later on in life (Gorsha, Aplevich, & Zukow, 2017). This is due to the lack of pain that experience.

The disorder is believed to be caused by a mixture of environmental and genetic factors, with most cases being diagnosed without a single known cause (Sharma, et al., 2015). Scoliosis can also be caused by different conditions such as neurofibromatosis, muscle spasms, Marfan syndrome, and cerebral palsy (Gorsha, Aplevich, & Zukow, 2017).

Scoliosis in Children

Juvenile idiopathic scoliosis (SIA) is a state of the spine that causes the spine to deform in three dimensions: the coronal, sagittal, and axial planes. SIA is defined as any curve that is 10 degrees or more at the coronal level in patients 10 to 18 years of age. Preoperative magnetic resonance imaging is useful to rule out neuronal causes of scoliosis such as syringomyelia or chimeric malformations, although their use as a preoperative detection tool is controversial. A genetic component is described in relation to the cause of AIS.

With an incidence of 11% among members of a first-rate family, it is not uncommon for a health worker to treat more family members with scoliosis. ISAs account for about 2 to 3% of the adolescent population, but less than 10% of AIS patients require treatment. The bigger the curve, the bigger the appearance and the proportion of women. The curves over 30 ° have a prevalence of 0.1% to 0.3% and affect women ten times more often than men.

Treatment

The treatment of scoliosis includes a non-surgical treatment, e.g. For example, the curvature of the curves is between 20 and 40 times and increases by 5 layers per year. The larger curve size, the younger chronological age and the Risser sign are associated with the curve. The literature has been shown to be more effective in patients with anterior risser number (0-1) and open triradial cartilage (Kandola, 2019). The purpose of the tension is to maintain the extension of curvature during the growth phase of the patient, although conflicting evidence has been reported for its effectiveness. An operation is indicated when the curve is progressive despite loading and normally reaches 45-50 degrees. The main goal is to prevent waveforms that can lead to serious complications, including lung function and back pain, through the untreated curve. The other goals dictated by the patients themselves are the improvement of the cosmos. Quality of life studies conducted with the SRS-22 questionnaire showed that patients with AIS had low self-esteem and were more aware of their overall appearance than the general population (Karimi & Rabczuk, 2018).

This result may be related to shoulder imbalance, rib force, or trunk symmetry. Therefore, the psychological effects of the malformation should be taken into account when considering an operation. The aim of the intervention is to restore the coronal and sagittal balance, reduce the strength of the ribs and achieve the balance of the shoulders. Another important goal is to keep as many segments as possible so that movement in the lumbar spine is maintained. However, some studies show morbidity associated with decreased lung function (Dobbs, Lenke, & Kim, 2006). It seems to improve with 2 years of follow-up. The anterior approach can be used to fuse individual curves of the breast, but also to achieve anterior release and fusion in combination with posterior vertebral body fusion in stiffer and larger curves (> 90), although curve correction can be achieved. Since pedicle screw development, the only posterior approach has been the basis for AIS treatment. The pedicle screws provide a 3-post fixation that allows greater curve correction and better rotation (Asher, Lai, Burton, & Manna, 2003). Bolt constructions with osteotomy offer a good correction even in the heaviest (> 90 places) and stiffer curves, reducing the need for new approaches.

However, the introduction of the pedicle screw has a learning curve, in particular with freehand technique

(Merker, et al., 2018). With the experience of the surgeon, the precision of the realization of the pedicle screw and the decrease of internal fractures improves (Kim & Iyer, 2016). The reported offenses vary between 1.6% and 58% (Karimi & Rabczuk, 2018). Despite these violations, the rates of neurological damage and organ damage are low. Recently, a hospital in Philadelphia used staples for twelve patients who had idiopathic scoliosis, but did not wish to use the bracing treatment. These staples were inserted via thoracoscopy. Another patient whose curve was not in the chest but rather the lumbar spine was given miniature incisions. So far, the curves have not progressed and have been sustained, with the follow-up treatment being immensely short in comparison with other disorders (Betz, 2018).

Scoliosis is treated based on where it is located, what caused it, and what the degree of the curve is. The treatment of the disorder generally involves surgery, bracing, and certain exercises (Cheng, et al., 2015). Braces have to be used and fitted until development halts. The aforementioned exercises can also be used in order to reduce the disorder's development and progression.

Braces

It should be emphasized that the purpose of this paper was only to suggest treatments and not to compare their results. Depending on the structure of the orthosis, spinal orthoses can be divided into rigid and flexible orthoses.

Milwaukee brace

One of the most frequently used orthotics is the Milwaukee brace. For spinal deformities, this brace was one of the first modern developments that was made toward improving treatments. It was created by Schmidt and Blount for scoliosis that is caused by polio and is generally used or given to patients after they have been operated upon (Lenke, et al., 2001). In addition to the anterior and anterior pelvic ankles of the occipital joint, this orthosis includes a pelvic portion (mainly plastic) in the anterior and posterior positions. It is mainly used in patients with a T8 curve (Dobbs, Lenke, & Kim, 2006). Another type of brace used to treat scoliosis is TLSO, which the Watts team used for the first time in patients with progressive AIS and a degree of curvature below T8 (Dobbs, Lenke, & Kim, 2006).

Boston Brace

In fact, the Boston Brace is the most frequently used brace in the Northern side of America. This was developed for the Boston Children's Hospital by William Miller and John Hall in 1972. This accessory is now commercially produced in six sizes to decrease costs and production time (Lenke, et al., 2001).

Corsets

The Dr. Jacques Cheneau had first introduced this brace in 1979. This uses two action mechanisms, which are passive and active. While the goal of orthopedic

treatment for scoliosis is controlled by progression, it appears that Cheneau enhancement corrects the curvature in some cases (Gutmann, et al., 2017; Kandola, 2019).

Sforzesco Corset

This brace was named in 2004 in honor of the Sferza family to bypass the procedure of casting, especially for the worst patients based on the SPoRT stress. It consists of two polycarbonate parts each, which are connected at the front and back by a vertical aluminum bar and a closure (Le, Castelli, Perrin, Henaux, & Noël, 2016).

Lapadula Corset

It has the same structure as the Sforzesco polycarbonate clamp. The only difference is that the lapadula corset has no plastic top on the chest. The application is also recommended in patients with hyperperosis and scoliosis (Le, Castelli, Perrin, Henaux, & Noël, 2016).

Spinealite soft corset

This orthosis is also called CMCR corset. This monoblock brace was developed in 1997 by the Lecanto Association in the center of Lyon des Massues. The platelets of support unlike the platelets of Lyon are mobile and easier. It is a lightweight brace that is reinforced with carbon plates (Sharma, et al., 2015).

Exercise

Exercise is another conservative treatment that is presented to most patients who have scoliosis. In addition to the routine use in scoliosis, special approaches have been prescribed for patients with scoliosis, which are discussed upon in the following section.

Individual Functional Therapy of Scoliosis

This type of therapy is founded on the use of various aspects chosen from a range of therapeutic approaches taken from different concepts of treatment (Kim & Iyer, 2016). This technique was developed in Poland with the aim of improving posture problems and scoliosis. In fact, it is a technique of treatment and diagnosis for those who have idiopathic scoliosis. It can be utilized for improving scoliosis, assistive therapy for muscle work, preparing children for surgeries, and to improve the shoulders and pelvis after surgery (Gorsha, Aplevich, & Zukow, 2017).

Spine Core Method

It is a posture recovery method that consists of a combination of corrective movements and a general muscle balance exercise (Le, Castelli, Perrin, Henaux, & Noël, 2016).

The Lyons Approach

The Lyon approach is a physical therapy method that is used in combination with Lyon forceps. This approach takes into account three main parameters, including patient age, postural imbalance and Cobb angle (Merker, et al., 2018).

Acupuncture

In fact, sharp and delicate needles are used to stimulate a specific part of the body. It is also used more frequently in Chinese medicine to treat scoliosis and alleviate the pain associated with low back pain. According to available literature, it is too difficult to draw a solid conclusion about the effects of acupuncture on scoliosis (Karimi & Rabczuk, 2018).

Kyphosis

The final disorder being discussed is that of kyphosis. This is an excessive and abnormal convex spine curvature that occurs in the sacral and thoracic region (Kim & Iyer, 2016). This disorder is also called Kelso's hunchback or roundback due to the inward curvature of the spine. Thorax kyphosis is more common in men than in women (Kuklo, et al., 2006). The increase in breast kyphosis in girls during the peak of youth growth as it slows down due to slower growth (Gorsha, Aplevich, & Zukow, 2017). Every patient with kyphosis should be treated according to their current conditions and needs. It should always be remembered that patients with a negative sagittal balance can compensate for hip flexion, but it is much more difficult to balance a positive sagittal balance. Patients must be thoroughly examined by the hip flexors before surgery to see if they have a contracture. The main objective of surgery in the treatment of kyphotic patients is the correction of the sagittal curve and the restoration of the balance of the spine in an acceptable range above the hips and knees.

Types of Kyphosis

Round & Angular Kyphosis: A congenital kyphosis is generally observed at the time of birth. If the defect is discovered after 3 years, the design can be strengthened by default with Milwaukee deviations at night. An epiphysis can be performed from the age of 6 months (Lenke, et al., 2001). The compression of the vertebral body fractures, usually at the top of the thoracic spine, is often angular.

Achondroplasia: After lumbar stenosis, the second problem is for these patients. The kyphosis is located at the junction of the thoracic spine and the strut must be systematically prevented. In severe cases, prior surgery should be performed with a distractor. Morquio's disease of autosomal recessive origin causes significant platyspondia cyst of the chest. Hypoplasia of the atlas/unstable cavities are also found in these patients, justifying prudent rehabilitation with mobilization of the neck.

Changes in Psychomotor Development are Associated with Postural Disorders: Global kyphosis children in wheelchairs or lordosis, sometimes very unstable at athetosis.

Post Laminectomy: The prolongation of the laminectomy joint facets and posterior ligaments accounts for 80% of severe kyphosis (Kim, Lenke, Bridwell, Kim, & Steger-

May, 2005). If the reinforcement in Milwaukee is not sufficient, a previous merger should be considered.

Radiotherapy in neuroblastomas and Wilms tumor-sterilized cartilage growth and soft tissue extraction and can cause kyphosis; which generally responds positively to the propeller.

Ankylosing Spondylitis: Ankylosing spondylitis has symptoms that can last for 20 years. As a result, one can see an inharmonious Kyposum with loss of lordosis and perspective of the tribe.

In addition to anti-inflammatory treatment, rehabilitation also includes daily slants and activities such as lordosis swimming. In extreme cases where the eyes cannot be seen horizontally, subsequent osteotomies can be performed to balance the head by gravity.

Osteoporosis in Adults: High level of breast kyphosis is usually painful. This type of Kifosa is worse when it comes to the loss of physiological lordosis.

Kyphosis in children

Pain has special properties in children. In the absence of a cortical representation of the spine, it is not somatized. The pain is divided into six phases:

- **Stage 0:** painless
- **Stage +:** Pain occurs only during the percussion of the spinous process during the clinical examination.
- **Stage ++:** Mechanical pain during or after exercise.
- **Stage +++:** Static pain in the position: long sitting or standing.
- **Stage ++++:** Rest pain.
- **Stage +++++:** Use analgesics that are exceptional in children.

After puberty, a small back pain is associated with neuromuscular hyperplasia. Pain results from the hours of contracture that occur when the neurotic joint is poorly vascularized. Pain is associated with asthenia, eyelid tremors and circulatory disorders: cold hands and feet.

Old people

About 20-30% of older people have developed age-related kyphosis (Kim, Lenke, Bridwell, Kim, & Steger-May, 2005). Diagnosis is usually performed by orthopedic surgeons and qualified investigators using special instruments such as the curved ruler, blocks, markers and X-rays. In a vertical position, however, severe kyphotic malformations can also be easily assessed by laymen by their appearance. While unprofessional workers can accurately predict the simple visual classification of age-related kifos, the future decline in ADLs can be used in community health surveys, which are usually performed by public health nurses without any special on-site training.

Treatment

The child must be aware of the distortion of his back and be able to better visualize his form, position, and dynamics in the room. This static and dynamic recognition is achieved by a camera positioned laterally to obtain a profile view. It is necessary to explain the ideal sagittal position for the child. The child must also find a way to reach this ideal position and segment the disharmonious balance from head to toe, global and dynamic, learning and correcting.

Kyphosis that is postural thoracic is generally treated with exercises that focus on building strength and posture reeducation (Kandola, 2019). Due to vertebral abnormalities, vertebral wedging, or fractures, kyphosis that is thoracic and idiopathic is quite challenging to manage as a correct posture can be difficult to assume due to the vertebrae structural change. Generally, physical therapy is the only solution to kyphosis (Kim & Iyer, 2016). Due to the risks involved in surgery, doctors generally recommended that those with Scheuermann's and postural kyphosis do not go through surgery (Kandola, 2019).

Conservative treatments in Cyprus often requires no surgery. The use of double and physiotherapy is recommended in adolescent patients with thoracic or thoracic gypsophila at 55 degrees to adulthood. The braces do not affect patients with this disorder. The bracings must be worn more than 20 hours a day and must be used for at least 18 months (Betz, 2018).

The problem lies in the sequential correction

- Anteversion or retroversion of the pelvis
- Lordosis
- Chest kyphosis
- Frontal projection of the neck
- Anterpulsion of the shoulder.

In some structural cases, correction is difficult due to stiffness or poor muscle quality. Correcting an elegant posture takes time and physiotherapy is essential for optimal results. Directly rigid Kifosa is often the result of Scheuermann's disease, which results in a loss of height of the disc with impaired segment mobility. Elongation and relaxation of the spine during stretching are carried out with:

- Passive positions in the rejected or square position extending from the front tape vertebra to a supine position with a kyphosis point in a block
- Passive posture activates the final stretch
- Mobilization of veneers with three facets from the combination of active lateral flexion and overstretching and rotation with active overstretching.

Relaxation has to be global and three-dimensional. The segmental rigidity in the upper part of the kyphosis favors the chest when breathing deeper and further. Breathing exercises, especially diaphragmatic and lateral

costs, are performed with the utmost inspiration and profound decomposition.

Practice of `extension` sport activities

In kyphosis, no physical activity is contraindicated, as almost all activities involve stretching of the spine. Sport activities offered on a seat, such as cycling and rowing, are indicated, for example, in harmonious kifos foils. The position of the spine must be checked. When swimming, some styles should be avoided, e.g. dolphin and butterfly styles that increase sagittal plane curves. Physical activity integrates physiotherapy and conservative orthopedic treatment gives the best results in patients who exercise regularly. Hypotension is physiological in adolescents, and exercise is one of the best ways to combat this physiological hypotension.

Adults generally experience a tremendous amount of pain due to the disorder and do not the morphological parameters of the spine. A youth education program is very useful for students as it would educate them regarding the significance of posture and the tremendous amount of long-term pain and issues that arise from long-term bad posture.

Typical Exercises for Hyperkalemia in Adults

In adults, kyphosis is an active issue. Kyphosis in young adults is usually painful with a slight stiffness of the paraspinal structures, but the muscles remain strong. The aesthetic aspect is important, the patient no longer accepts the image of the fracture and often requires a surgical morphological correction. Old kyphosis is characterized by broken bones often associated with osteoporosis. Osteoporosis pain becomes more resistant to conventional treatments, muscles are less powerful and the spine is stiffer. Many older kyphoses are characterized by progressive atrophy of the muscles, which can lead to an extreme situation of Campocokia. When a kyphosis occurs in a certain aetiological context, such as a fracture, conservative orthopedic treatments are generally better accepted.

Correction of static tilt, relaxation

It is the main treatment for ankylosing spondylitis. It is very important that the drowning of the spine is closer to gravity. The ideal position arises when the direction is relative to the horizon is stabilized in a slightly oblique line. The patient must be able to see where they are going.

Spierher harmonization

There is also a lack of harmony between the anterior and posterior chains, i.e. between the extensors and the flexors of the pedicle. In concentric isokinetics, the typical ratio for the extenders is 0.7. This relationship can be modified in kyphosis with reduced stent resistance compared to the flexor.

Breathing Exercises for Cost-Rival Mobility

The exercises are performed in maximum dimensions

with the upper limbs to facilitate mobilization of the chest. Movements will be slow, if possible, with a vertebra to prevent lordosis and to focus on the mobilization of the thoracic region (Yaman & Dalbayrak, 2014)

Method

The current research is based on the qualitative methodology. This is a research method that utilizes observation to collect data that is not numerical (Hammersley, 2017). The research uses the description, meaning, symbols, definitive concepts, metaphors, and characteristics instead of measures or counts. The methodology allows researchers to answer how and why certain occurrences take place instead of their frequency (Hammersley, 2017). This approach is used through various disciplines that focus primarily on the natural and social sciences. Through the use of the qualitative methodology, the current researcher relied on secondary data collected from academic journals, articles, websites, etc.

Primarily, the academic research used for the current study was attained using websites such as Google Scholar, JStor, JournalSeek, EBSCO, and Embase. In contrast to secondary data, primary data is gathered by conducting research, while secondary data uses less time as it relies on the research conducted by previously established academic scholars. In this light, secondary data analysis is able to provide high-quality research that has a larger foundational base. While this type of research is used through numerous disciplines, its use in marketing is not recommended due to the fact that gathered data may be inaccurate or outdated (Hammersley, 2017). However, in the context of the current subject matter, this type of a methodology was highly appropriate.

While the search for academic sources was primarily performed via databases such as Google Scholar, JStor, JournalSeek, EBSCO, and Embase, certain keywords were used in order to find appropriate sources that met the selection criteria. The academic source selection criteria were as follows:

- Source needs to have an English version; either translated or original
- These sources focused on either neurofibromatosis, scoliosis, or kyphosis.

While this criterion was used to screen all of the sources found, papers, journal entries, etc. were selected based on both their abstracts and titles. The final sources that were used for the current paper were ones that met the aforementioned two criteria and had context that related to the subject matter and shed light on it.

DISCUSSION AND CONCLUSION

Through the synthesized literature, it can be understood that while surgical treatment is preferred for neurofibromatosis and scoliosis, kyphosis should be

treated with non-surgical means due to the varied risks that the patient may be placed in.

NF2 is a predominant genetic disease due to mutations in the NF2 gene on chromosome (Hammersley, 2017). The disease, which Wishart first described in 1822, is actually a rare disease and occurs at around 1 in 60,000 (Kandola, 2019). Decades after the initial description, this disorder was viewed as part of von Recklinghausen's disease, but eventually recognized as a distinct entity with multiple causal genetic mutations. The characteristic phenotypic manifestation is often bilateral vestibular schwannoma (Kuklo, et al., 2006). Vestibular schwannoma occurs in 95% of adult patients with NF2. Skin manifestations, such as pubic and neurofibroma, can occur in NF2, but are less pronounced than their Type 1 counterparts. Tumor malignant transformation, Lisch nodules, inguinal or axillary freckling do not occur or show signs of occurring in the second type of neurofibromatosis. In contrast, patients who have the second type of neurofibromatosis can have lenticular posterior subcapsular opacities. The clinical diagnosis criteria of the second type of neurofibromatosis by the National Institute of Health are as follows:

- Eighth mass of bilateral cranial nerves observed using appropriate imaging methods.
- A unilateral mass of the eighth cranial nerve and a first-degree family member next to the patient.
- A direct family member with either of the two:
 - Neurofibroma;
 - Meningioma;
 - Glioma
 - Schwannoma; or
 - Juvenile lenticular posterior subcapsular opacities

NF2 management generally presents significant difficulty to the treating physician in terms of surgery timing, the nature of the surgery, and surgical approach. In spite of these difficulties, surgery is generally preferred by treatment facilities as being the best choice (Kim & Iyer, 2016). It has been found that surgical treatment by a team of experts represents a significant confer to the mortality benefit of the patient (Asher, Lai, Burton, & Manna, 2003). Surgery, even in experienced hands, is associated with several major complications, including complete hearing loss and facial nerve damage (Kuklo, et al., 2006). Patients who have poor surgical candidates or refuse surgery may be considered for radiotherapy or experimental therapy modalities. In an autosomal dominant disease, children of affected parents must be frequently examined to determine NF 2 mutation phenotypic manifestations.

Neurological examinations, annual brainstem response and ophthalmological examinations are suggested. The preferred imaging modality for detecting neural tumors is Magnetic Resonance Imaging. Magnetic Resonance Imaging is recommended every 2 years to the point the patient reaches the age of 20 years and every 3 years after 20 (Sharma, et al., 2015).

Although the patient may have irreparable hearing loss, the possibility of reducing the volume of surgery has been suggested in view of an increase in intracranial load and subtle damage to the trigeminal nerve and facial nerve. that after debulking everything has improved. Neurofibromatosis is a genetic disorder of the nervous system, which affects in particular the development and growth of neuronal vertebrates. These disorders cause the growth of tumors in the nerves and other anomalies such as changes in skin and bone formation. Although many sufferers inherit the disease, between 30 and 50% of new cases occur spontaneously by altering their genes.

There is no doubt that scoliosis is one of the most common malformations of the musculoskeletal system. Various therapeutic approaches have been recommended in patients with scoliosis malformations. The purpose of the current paper was to categorize and introduce various conservative therapies for patients with neurofibromatosis, scoliosis, and kyphosis. As these disorders share similarities, they share treatments as well.

Recommendations for Future Research

While the current study was conducted with a considerable amount of depth into literature regarding the subject matter, future research should investigate region-specific issues and traits related to these disorders as well as the shared characteristics between populations. By doing so, researchers may be able to find correlations or shared traits amongst certain populations thereby revealing more understanding into the origin of the disorders. By developing an adequate understanding of the subject matter, researchers can specifically understand the origin better and thereby develop better treatments that are more adequate for patients given the slight variations these disorders demonstrate.

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