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A Comprehensive Review on Cerebral Venous Thrombosis: Pathophysiology, Diagnosis, and Management

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ABSTRACT

Cerebral venous thrombosis (CVT) and cerebral Venus sinus thrombosis (CVST) is a type of medical condition in which there is a presence of a clot of blood in the region of Dural Venus sinuses in which there is a lack of blood supply or in simple terms, a complete drain of the blood from the brain or from the veins of brain (cerebral veins) awesome both. It is one of the biggest issue of the brain but is also rare. It is somewhat similar to a brain haemorrhage. In short, this medical condition could be explained as assumption in which there is insufficient blood flow and also in an improper manner due to clotting of blood in a particular region or in a whole nerve. Here, the words of the condition can be easily explain like cerebral means related to brain, Venous means veins and thrombosis means clotting of blood. The symptoms include primarily severe headache, dizziness, tremors and improper functioning of a particular part of body or any of the both sides of the body i.e. left or right. The primary reason for this condition could be hypoxia Audi hydration that means in sufficient supply of oxygen and water, and the secondary reason is the elevation in blood pressure or hypertension. The sinuses place an important role in this whole condition. The left and the right part of the body have their own sinuses respectively and the largest sinus is the maxillary sinus which is approximately 1-in long in size. All the sinuses comprises to become a sinus centre.

KEYWORDS: sinus, thrombosis, cerebral veins, parenchymatous cells.

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INTRODUCTION

Cerebral venous thrombosis or cerebral sinus Venus thrombosis is a special type of stroke or haemorrhage which mainly occurs in brain as the name itself resembles to a stroke or haemorrhage in brain or in the veins of brain. VT is a very rare type of stroke which is mainly associated with an ascending order of mortality rate. This type of thrombosis occurs with multiple types of symptoms with variable magnitude or in simpler terms we can say with different multitude and symptoms which makes it hard and difficult to recognise and differentiate with the other neurological disorders and sometimes also consumes much amount of time and instrumental technology to identify the particular condition of the patient[1][2].CVT or CSVT requires a very précised working and functioning of both clinical and radiological proficiency and those type of medical practitioners who knows the condition inside out and can also deal with the patient with much amount of care a knowledge.

As we know that our brain has a complete command over body other than the heart, but in the case of this cerebral venous thrombosis there is also a slide involvement of the heart as increase or elevation in the blood pressure can also lead to the initiation of a thrombosis or a clot in many veins of the brain which can restrict the free movement of blood in the brain and

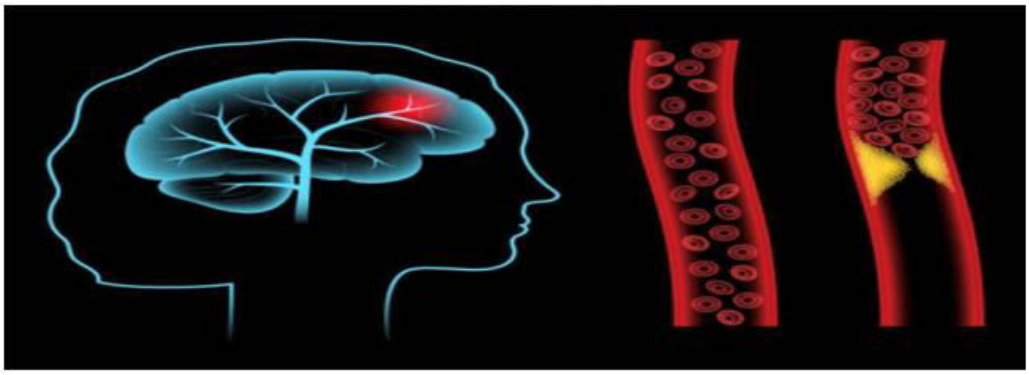


Fig 1 : Thrombosis(blood clot) in the Cerebral Veins

Due to this it can also affect the supply of pure oxygen into the brain. This situation of hypoxia or insufficient supply of oxygen through blood can cause severe and uncontrollable headache in which sometimes some analgesics or tranquilizers are also not able to solve the issue as soon as possible. In many cases, the thrombosis along with headache can also cause severe vomiting and dizziness and the dizziness act just like a lights out condition for the head. The cases of this cerebral venous thrombosis

Fig 1 : Thrombosis(blood clot) in the Cerebral Veins

involves a very deep and précised analysis or examination of almost all the parts of brain through the help of the technologies like the CT (computed tomography) scan and MRI (magnetic resonance imaging). Along with the sinuses, the other parts of the brain that are check the or analysed are the spinal cord or the cervical spinal cord, ventricular system and also the glands. The severity of cerebral venous thrombosis is much high as compared to the thrombosis in some other part of the body as if there is a thrombosis present in the whole sinus centre it can affect the any part of the body whether it is sensory or related to the motor system of the body. The thrombosis mainly affects the system by blocking or inhibiting the function assigned to that part, and it is also difficult to predict whether the action stopped is temporary or permanent. The patients of this condition suffers through multiple series of events from the onset of the problem. Headache which is the primary symptom of the condition where is from patient to patient and its servility also differs in each of them. Usually it starts with mild headache and then gradually shifts to severe pain which is intolerable. Along with this headache maximum patients also suffer very high dizziness and sometimes frequent vomiting and it grows on day by day [3][4][5].

In the earlier times or we can say in the pre-antibiotic era, the leading cases of cerebral Venus sinus thrombosis were in the septic form and now a days they mainly came up in the aseptic form. Sometimes, at also becomes hard for the medical practitioner to identify and diagnose the disease or the conditions because the symptoms in the condition can us from country to country and so was in the severity of symptoms. In many under developed and poor countries, there are some cases of this condition and mainly the victims are very young children and the factors which are responsible for this condition in their geographical conditions could be improper pre-natal care, disarrangements in the metabolism of the child and also the presence of some infectious agents during the process of childbirth and development.[6][7]

As we know that, nutrition plays a very important role in the treatment (apart from medication) of any disease or disorder or any condition of the body. Similarly, in the case of cerebral Venous sinus thrombosis many micro and macronutrients, vitamins and fibres also plays in important role in giving or providing nutrition with nourishment to the veins of the brain like for example vitamin B complex is very useful and essential for the visionary senses of the body and its deficiency can cause serious headache and optical visionary issues. But, sometimes avoiding the consumption of some nutrition can also give some or show some better results; for example in the case of CVT, avoiding the consumption of dietary substances which contains vitamin k, sugar and oily food items can show better results as vitamin k has correlation property and sugar and oily food substances makes the blood thick and restricted the pre movement so restricting those substances can help in a proper free flow of the blood.[8][9]

Apart from nutrition, the atmospheric conditions are also a big factor which is responsible for this cerebral Veinous thrombosis as the deficiency of pure atmospheric oxygen in the brain or in the blood veins can create the situation of hypoxia which can lead to the degeneration of the nerve cells and as a major drawback, could get dry due to rapid sel death because of lack of oxygen. Along with the lack of oxygen, the consumption of various burning smokes could also be responsible for this condition as the harmful soot of the smoke gets deposited in the lungs and specially in the alveolar region of the lungs and create difficulties in the proper exchange of gases which can also create the situation of hypoxia leading to the same damage to the nerve cells.[10]

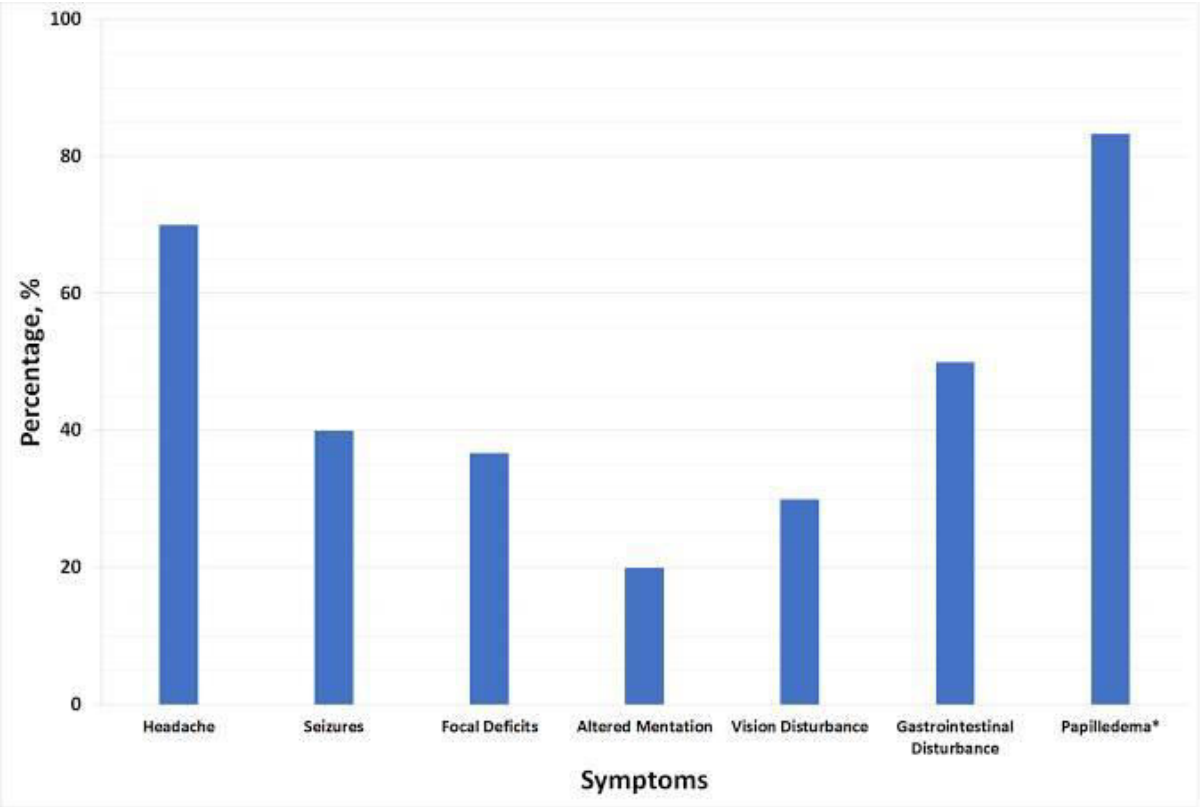


Figure 2 Graphical presentation of symptoms of CVT in percentage

ANATOMICAL STUDY OF SINUS IN THROMBOSIS

There are various types of sinuses in our whole body which are responsible for different kinds of functions in different organs but in the case of cerebral Venus thrombosis the type of sinus which is responsible for this condition is dual venous sinus. And some sort of maxillary sinus. The other common names of this dual venous sinus are dural sinuses, cerebral sinus aur cranial sinus. This type of sinus are mainly the channels of veins found in between the layer of meninges and the endosteel part in the region of duramater of brain. This sinus mainly receive the cerebros final fluid (CSF) from subarachnoid space through arachnoid veins, and along with this they also receive blood from the cerebral veins and then empty"s both the contents in jugular veins. The structure of this type of sinus is mainly composed of duramater completely line with the endothelium cells which are mainly present in the blood vessels. The characteristic feature that makes it different from other blood vessels is that they like a complete set of layer of vessels. They also don't have any type of valves who allows a controlled flow of different fluids or blood.[11][12]

There can be various types of engineering in the sinus which can result in the damage to multiple things. The the injury in the sinus's dura matter can result into the clotting of blood inside the dura sinus. The other causes could be the damage caused by the infection in the ophthalmic or optic nerves and can also result in orbital cellulitis. The drainage in the cerebral venous region are mainly composed of two types of systems; the deep venous system and the superficial system. There is a complete path in which the blood gets drained from the starting point to the end point and includes various types of sinuses. It mainly starts from the blood mainly gets drained into dural sinus but follows the path which include superior sagitral sinus (SSS) then inferior sagitral sinus (ISV), lateral sinus (LS), carvenous sinus with straight sinus and then ultimately drains into jugular veins. In many cases of occlusion, it is very tough to diagnose the superficial venous system because of its high proportion of anastomoses. Superficial Venous system dreams the SSS and L meanwhile the deep Venous system drains the deep white matter and the basal ganglia towards the galen vein. In between these two type of cerebral Venous system, there are many types of anastomoses can be diagnosed which is quite a little bit tough work.[13][14]

There are mainly the two standard divisions in the dural sinus system and that is the posterior superior (P-S) and the interior inferior (A-I). The first part of the first division that is posterior superior mainly compressors of SSS, ISS,LS,SS and also the hospital sinus. The second part or second division that is the anterior inferior region mainly occupies the carvenous sinus along with inferior and superior petrole sinus.[15]

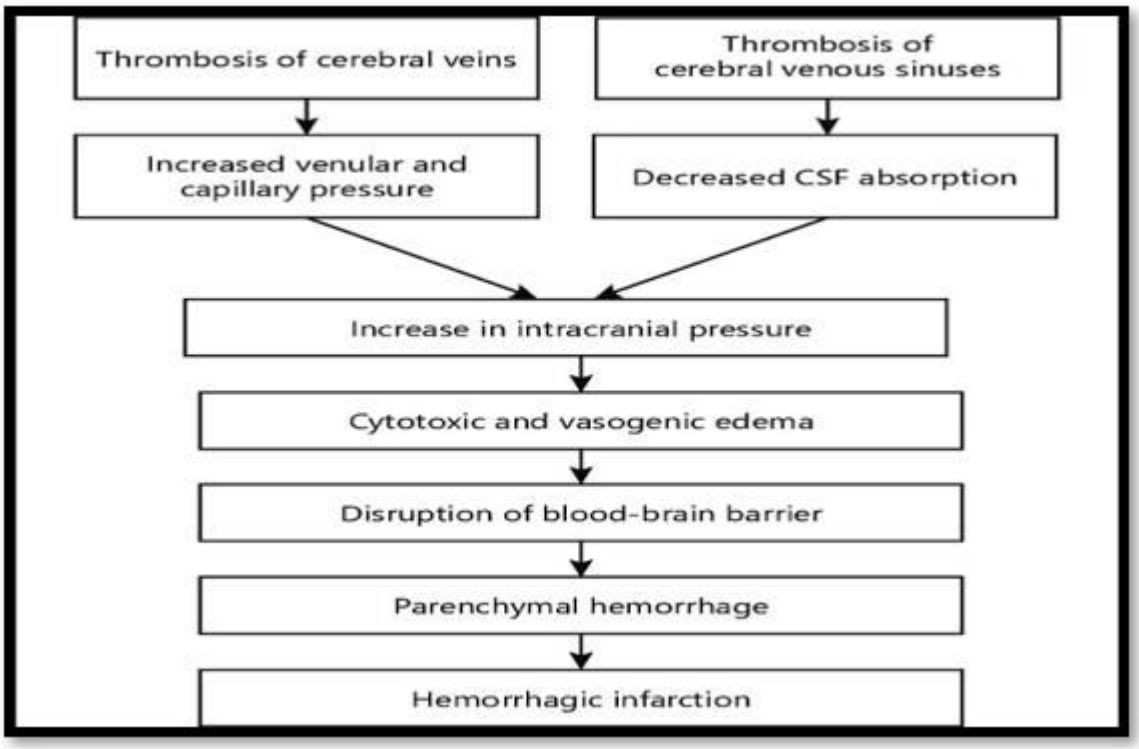
PATHOPHYSIOLOGICAL STUDY AND RISK FACTORS IN CVT

The complete pathophysological mechanism of this cerebralbinous thrombosis has not been completely evolved and understood till date and it is still a complex mixture of two areas that is the brain parenchyma and the hemodynamics and the current knowledge and the information available in CVT has been taken from the specific designed models of animals. The complete pathophysiology which is still not completely understood can be presented in human body by the help of two types of mechanism and their mainly the thrombosis in cerebral veins and the thrombosis in the cerebral Venous sinus. The study through animal modellings have displayed results which clearly shows that thrombosis of sinus male lead to the occlusion and the backflow of blood can also occur into capillaries and venues and this can lady to increase in the local pressure and the increased local pressure can lead to huge edema or inflammation in the cerebral region.[16][17]Occlusion in the cortical vein can lead to elevated pressure in the small vessels depending upon the degree of thrombosis and also the collateral availability. This whole process can further lead to the disruption of BBB and also the selling blood in the intercellular or interstitial spaces due to leakage which can cause the edema in vessels aur ine simply terms basedogenic edema with parenchymatis tissue damage. The CSF also place a major role here. The decrease in the level of cerebrospinal and it's drainage due to occlusion sinus can lead to dysfunction of aranoid granulations and you to this there also be increase in the pressure in the cranial part. Elevation of pressure in a continuous manner can result in capillary hypertension cerebral edemaand hemorrhage of venous.[18][19]

There are many types of diseases which have only one or two risk factors but as compared to others CSVT is a disease which is multifactorial or ine simplar terms there are multiple types of risk factors which are involved in this condition but the common thing is that one risk factor is seen in almost 86% of adults who are affected with this condition. All of these risk factors are mainly linked to thromogenic tired of Virchow, which involves vessel wall injury, hypercognibility and stages of blood.

The most common implicated risk factor in cerebral venous thrombosis is Pro thombotic conditions. Those patients who are suffering from hereditary thrombopilia have a growth in predisposition rate for enhancing or developing any sort of thrombosis, including the cerebral sinus venous thrombosis.

The most frequent causes for this in technical terms are factor V Leiden, G20210A prothromium polymorphism and antiphosphor lipid syndrome. As mentioned earlier what are the more common risk factors for this condition, there are also some less common factors which also be highlighted in these are mainly the deficiency of some substances like the deficiency of protein C, deficiency of S and a deficiency of antithrombin lll.[20]



MECHANICAL DIAGNOSIS OF CVT

In earlier times, usually the diagnosis of CVT was a challenging process but in the recent time as technology has shaken hands with the medical science, the diagnosis of such tedious diseases and conditions has become much easier. D. providing mechanical, electrical and technical support and modification has given new rise in the field of diagnosis and prognosis. In the field of neurological sciences., using technologies like computer, tomography(CT Scan) and magnetic resonance imaging (MRI), both has come up as a hallmark diagnostic instruments which has helped many neuro physicians and surgeons to assemble the line of treatment for treating the patients of CVT and other neurological disorders. These sophisticated instruments mainly works on different rays. Like magnetic rays, x-rays etc. The readers will get to know more about computer tomography and magnetic resonance imaging [21][22]. In the information mentioned below:

COMPUTED TOMOGRAPHY

We know that in a CT scan, there are multiple images created in the computer screen when a complete scanning process is performed, but how it is done is still lesser known to common peoples. The process of the process of creating images via volumetric, physiological imaging in the computer tomography is done by using x-rays and this whole process started in between 1970 to 1980. In most neurological conditions computed Tomar Graffi is used as the primary tool of investigation. The reason for being a primary tool of investigation is its availability all over the world accurate results and shorter scanning time. The complete set of computer tomography machine is also available at a very low cost, so it is also one of the reason why it is mostly preferred in the primary examination of CVT. One study reported that when CVT is in its acute phase. Usually 39% of scans are normal and thrombosis is observed on a non-enhanced computed tomography when a high-attenuation lesion produces a shape of dense triangle, which resembles and intravascular acute blood clot. To get completely disappeared. This sign takes approximately 2 to 3 weeks and is usually seen in approximately 25%. of patients suffering from CVT. similarly, the elevated attenuation of the cerebral sinuses can also represent conditions like dehydration, polycythaemia, subdural haemorrhage and sometimes nonmyelimated brain in neonates makes both the sinuses to display and some different attenuating. In a non-enhanced computed tomography., the increased or elevated attenuation is the only finding which can be completely suggestive and the patients who are resembling these type of signs are usually suggested to go for enhanced computer tomography as well as enhanced magnetic resonance, imaging process.[23][24][25]

The primary and early changes in the cerebral venous, thrombosis or often, not that much

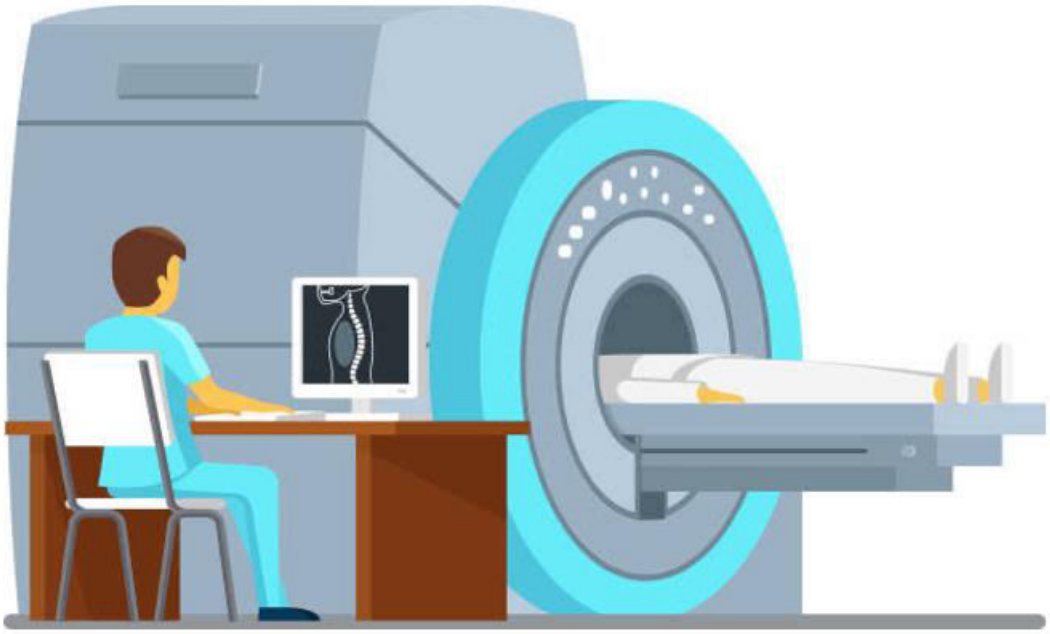


Figure 4 : Block diagram for CT scan machine

Noticeable swelling of the gyri and with brain edema. Sometimes this thrombosis also leads to infarction which is mainly an uncommon form of stroke and is usually the secondary form of CVT and is considered with or without haemorrhage. Brain lesions, are mainly related to venous distribution. A study of a scientist also showed that the most usual and frequently sign that came across is the thalamus or thallam with hypodensity and internal capsule which is approximately 75 to 77% and the rest is haemorrhage infarction which is approximately 19 to 20%. there is also a possibility of getting hydrocephalus because there is a compression of Monro's foremen and the two things which are responsible for it is basal ganglia and the extensive edema of the i thalami. The thrombosis of a deep cerebral vein can occur unilaterally, but it is seen very rarely and on the other hand the sinus which is already thrombosed is seen as a sign of *empty delta*. TheseSigns Richard displayed can be said as the direct evidence. However, these direct evidences of a R available and seen in 20 to 30% of the cases of sinus thrombosis and very rarely in the isolated cortical Bevin thrombosis, but still is not hundred percent sure and confirmed. Studies also show that for collateral blood damage, the source are mainly transcortical medullary veins. The continuous dilation of these veins or vessels makes them to display themselves. In contrast-enhanced computed tomography. Apart from these, small, subdural haemorrhage are only visible occasionally. Sometimes, the conventional axial CT scans fails to demonstrate or explain an increased attenuating sinus or an empty Delta mark in the horizontal segment of the superior sagital sinus and the reason is poor Volume averaging.[26][27]

Magnetic resonance imaging(MRI)

Apart from computer tomography scans, the technology of magnetic resonance imaging has also been a gold standard in terms of getting accurate results and for specifically nervous system, related disorders as well as for other organs also. To create multiple images in almost every angle., the complete set up requires high training and skills to completely diagnose the condition and the primary tool in the setup is mainly the sophisticated magnets which are multiple in number and are of high power and magnitude which creates resonating images when commanded to create friction during the rolling process. The MRI scans are usually performed in between the range of is 0.5 to 1.5 Tesla which is also considered safe for human diagnosis.[28]

As mentioned earlier that MRI is one of the primary tool for investigation and nowadays it has also became the primary instrument for investigation of choice for CVT. MRI is more accurate and sensitive as compare to computed tomography and it also explains the age dependent signal characteristics. The physicians and technicians also says that the most essential findings on the MRI is abnormal signal intensity inside the structure of venous, indicating irregular flow and clot formation. For every MRI, the MR pulse sequence is very important. An MR pulse sequencing is nothing but setting up a sequence of pearlsed field gradients, so that an image could be formed and appear and it is essential because it is more sensitive towards acute intracranial haemorrhage. The most widely used standard MR pulse sequence is Gradient recalled-echo (GRE)T2*WI.[29][30]

Figure 5 : Diagrammatic view of MRI machine

Low vision aids and ophthalmic vision magnifiers

When a patient is diagnosed with CVT, the primary organ which gets damaged and is captured by thrombosis is the brain and also the nerves. As mentioned earlier., it is really difficult to predict that which organ will be get affected apart from the brain because the thrombosis can occur in any part of the body but the recovery rate also differs from organ to organ. Usually it is seen that the optic nerves has De highest recovery rate among the other organs. When the thrombosis takes place in the optic nerves, usually the normal functioning of the eye gets damaged and also some patients do suffer from extreme low vision and even blindness due to inadequate supply of oxygen and blood is down. So due to the shrinking of the nerves.[31]

To counter and solve these type of issues related to the eye, just like some hearing aids, there are also some tools and instruments which are designed for the treatment of the eye, which are mainly known as low vision aids. Low vision aids are the equipments and devices manufactured by various companies by the help of machine and mechanical engineers and are launched after multiple number of testing and trials. Low vision aids usually enlarges and brighten up the view so that the person can easily view very fine and tiny alphabets and objects precisely. These Lo vision aids are generally suggested neurologist and ophthalmologist after careful counselling and examination of the patient. Low vision aids is a collective term which is given to multiple number of devices which are constructed in a different manner to each other and also have different functioning and procedure to use and apply but all of them has a primary goal I.e to improve and enhance the patient's visual power. These low vision aids generally include high power spectacles and glasses, low power telescope, camera, embedded text reader zooming machine, artificial add-on lenses etc. Though these Low vision aids are very good and powerful in enhancing the visual power but still the success rate is not that great in the Indian society because these devices are not that much cheaper so that every person who is suffering from any low, visual problem can purchase it. to counter this issue, different companies and scientists as well as engineers or working on their future prototypes to make them more pocket friendly as well as more convenient to use.[32][33][34]

Ophthalmic, magnifiers or ophthalmic magnifying glass is a specialised magnifying glass, which is used by neuro physicians and neurosurgeons. these magnifiers are usually designed for the doctors of eyes and brain to view very fine and tiny nerves and other parts like cornea, pupil, retina etc. it is magnifying glasses as also equipped with a bright light which is covered by a concave lens and is projected to straight into the eyes to view the inside structure clearly.[35]

Figure 6: Magnifiying glass as a primary low vision aid

Treatment and management of CVT

When a person is diagnosed with CVT, then he or she is suggested to go with immediate medical treatment because if the condition doesn't get primary focus, it goes from bad to worse day after day, ultimately leading to blockage or haemorrhage in the nerves. Call treating the patients, and different types of steps are taken by us group of skilled doctors and pharmacists which includes some clinical treatments, as well as some non-clinical measures like therapies, exercises, diet restrictions and counselling. When both clinical and non-clinical measures are followed by the patient, then both worked together in harmony to get a faster recovery.

Clinical and non-climical treatment

A patient of CVT undergoing clinical treatment follows a specific procedure, which includes hospital admitting in primary examination, followed by administering medicines and performing some surgical procedures at a regular interval of time. in terms of medicines, patients of CVT receives drugs which have multiple actions and are used in various purposes. Diuretics, blood thinners, vitamin boosters,NSAIDs and muscle relaxants are the primary set of drugs which are provided in to the patients and apart from these some saddatives and analgesics are also given to them and are then observed regularly in a specific period of time. Apart from these drugs, some minor surgeries are also performed to modify the process of treatment and also for the faster recovery of the patient. These minor surgeries usually include CSF examination and also the interocular pressure examination performed by anaesthetic surgeons and neurosurgeons together.

Clinical measures

The treatment of CVT in terms of clinical measures includes various categories of drugs and medications which helps to treat the problem by following different mechanicms of actions. These clinical measures or these medication are the primary step which is taken by nuerophysicians after the diagnosis of the condition. Following are the list of medications for treatment of CVT:

Acetazolamide

This drug mainly belongs to the category of diuretics and comes under antihypertensive Bhatt. It also helps in treating the condition of CVT as it lowers down the blood pressure, which was responsible for the onset of thrombosis. Acetazolamide acts are seen as other diuretics. 10 by increasing the output of urine. So axis amount of water and salt will be released or excluded, resulting in lowering the blood pressure, but it is not only the specific reason for choosing this drug for treatment in CVT. Acetazolamide has multiple functions and can be used for various purposes and that's why it has been a favourable choice of doctors.. Apart from using it as an antihypertensive drug, it is also used in an epilepsy, altitude, sickness, and also certain types of glaucoma. Acetazolamide also comes under the category of carbonic anhydrase inhibitor. It can also reduce major headaches, tiredness, fatigue, nausea and dizziness.[36][37]

Blood thinners

Blood thinners are also known as anticoagulants and are used for the treatment of CVT because these medications mainly helps to prevent and treat the formation of abnormal blood clots which are also called as thrombus. These generally act opposite to the nature of vitamin K because vitamin K is used to clot the blood in the cases of woundsand injuries. Anticoagulants also helps in increasing the blood flow when it has finished its work of sending the blood. in case of C VT, when a haemorrhage is shown in

the blood vessels of the brain, the medical practitioners usually prefer these anticoagulants to remove the clothes because performing a surgery in these tiny and find blood vessels is not completely possible and can be life-threatening to the patient. When administered in the body, apart from brain, these anticoagulants helps in other parts as well. It also shows its action in the heart, liver, kidneys, legs, and also in hands.[38][39]

Anticonvulsants

Anticonvulsants or another class of medications which are used for the treatment ofCVT, because when a patient is suffering from this condition, he or she can also and show some symptoms of seizures or epilepsy. These medications are also used to control and treat involuntary muscle jerks which is seen in the condition of seizures and CVT Antiepilaptic drugs are mainly classified into three categories. The first category is that which facilitates GABA. The second category is neuronal channel blockers and the last category is the miscellaneous one. Levericitam is a drug which is mainly used as an anticonvulsant and also for some other actions and due to its multiple actions, doctors usually prefer this drug as a supporting medicine to treat the patients suffering from CVT.[40][41]

Vitamin and protein boosters

These are the specific medications which are used as a main drug as well as supporting supplementary medication sometimes. Usually patients of CVT lacks many vitamins as well as sometimes proteins also and the most common deficient vitamin which is found on CVT patients is vitamin B12 or cyanocobalamine. To complete or to cure this deficiency, the medical practitioners suggests the patients to eat vitamin B12 rich items like poultry products, sea food, meat related products etc. For the peoples who are vegetarian in nature finds it very difficult to complete their deficiency so the doctors prescribe them tablets, capsules, and intramuscular injections of the same like methylcoba. The meat products are also rich in proteins, so it also helps in gaining the level of proteins in the body which is responsible for many functions like cell repair and cell growth, maintaining upright posture of the body and also to improve and increase the immunological power.[42][43][44]

Non-clinical treatment

When the word ‘ treatment’ is used in any condition, It does not only mean of curing the patient with surgery or medicinal drugs, it also includes some non-clinical measures which also helps the patient to recover much faster because it can give some positive psychological effects which increases the recovery rate of patient. In many cases, these non-clinical measures are seen more effective as compared to these clinical measures as sometimes patient believes that having a good, healthy and productive conversation with a proper Specialist medical practitioner can treat them in a better way as compared to medicinal drugs and surgeries. In many surveys, normal peoples and even medical practitioners also believes that many problems were half solved. When patients follows call the non-clinical measures regularly and with full dedication. These nonclinical measures generally include different types of therapies, exercises, diet, restrictions in food items and eating habits and also good medical counselling. In case of CVT, the patient undergoes all of these steps before taking medicinal drugs. Following are the non-clinical measures:

Coloured light therapy

For the patients of CVT who are facing different types of visionary issues and challenges, can go with this latest therapy which is called as coloured light therapy in which the patient is exposed to different coloured lights which rare continuously blinking in a regular pattern with a variable speed. The patient is suggesting to maintain an optimum distance from which he or she can view is lights easily. The frequencies and intensity those lights are variable and can be adjusted by the patient himself. I am the Primary objective or goal of this therapy is to make the eyes continuously move from one angle to another an end to make the pupil contract and relax and again and again which will result in better focusing the object and also for better colour identification with respect to intensity of light because different colours have different wavelengths and the eyes will adjust automatically to match that wavelength for image formation.

Nutritional diet and food restrictions

For a healthy lifestyle, there are many things which have an essential role and one of those things which is one of the most important factor is nutritional diet along with some food restrictions. Nutritional diet and food restrictions is one of the biggest nonclinical measure becausein many diseased condition, most of the people start getting instant positive response by just doing some modifications in their regular diet.!t is seen from earlier times that food is the key factor for growth and maintenance of an organism because almost every nutritional ingredient is present on various food items. Despite of nutritional value of food items, sometimes it is also necessary to avoid some food materials consumption in different types of conditions. In the case of CVT, the patient is asked to follow a strict diet which is prescribed and suggested by a certified nutritionist and also with a neuro physician. The patients are suggested to eat those food items which contains a good amount of water and those who are less in cholesterol, carbohydrates and Trans fat. And they are also suggested to include all those items which are rich in proteins and vitamin B12. Apart from this, the patients have to follow some restrictions because it be booster there recovery rate. The food items or ingredients which are in a restricted in the diet or mainly sugar, extra oil, tomatoes, and also green leafy vegetables. It is very surprising for many patients that they are asked to avoid a green leafy vegetables with me and the reason behind this is that in the canteen very good amount of vitamin K as it helps to clot the blood whenever there is an injury. And apart from vitamin K, other food items like sugar, oil and tomatoes are avoided because these food items makes the blood more thick in which makes the blood pressure to get elevated which will be a serious consequence.

Outdoor physical activities and physiotherapies

In terms of nonclinical measures, for the patients of CVT, doing regular outdoor physical exercises in front of early morning sunlight is believed as very beneficial because the sunlight helps to improve the process of nerve cell regeneration and also to gain more vitamin D. regular physical exercise and physiotherapy is also helps to improve the process of circulation of blood

which also helps to cure haemorrhage and paralysis, eliminates toxic substances in the form of sweat and also to improve breathing process and to inhale more amount of oxygen. in the earlier times, physical exercises was not that much popular among the peoples of urban cities, but in recent time due to unhealthy lifestyle, modification, now the medical practitioners usually suggest every patient of CVT as well as to the patients of other diseases to go for regular outdoor physical exercise and physiotherapy for some specific cases as it will help in an equal proportion as of the medicine.

Medical counselling

Medical counselling is also one of a very important nonclinical measure, which is now a days followed by almost every medical practitioner And is done to make the patient completely aware of what the situation he or she is in and how they both can treat the patient to completely eliminate the disease. in the case of CVT, this is Ishan counsell the patient in many ways like during the correct diagnosis, observing die, medical reports and telling the patient what is the current situation, knowing about their case, history and also giving the solutions apart from medicines and surgeries.

SUMMARY AND CONCLUSION

Cerebral venous thrombosis is a very dangerous and life threatening condition in which there is coagulation or clotting seen in the nerves of the brain Due to which haemorrhage is caused, which can also lead to paralysis. Both the sinuses gets damaged as the blood pressure gets elevated and also when there is a deficiency of vitamin B12 end water. The diagnosis of this condition is a very tedious process and involves a multiple number of technological tools instrument analysis like computed, tomography scan (CT scan) and magnetic resonance imaging(MRI) machine. with the help of continuous modifications and enhancement in the field of technology, Many engineers end of ophthalmologists combines their knowledge to create a some new devices and instruments which can help the patients of cerebral venous thrombosis to get a better visionary power, and these devices are called the low vision aids which can be purchased easily by common people but are also slightly costly. When a person is diagnosed with CVT, the medical practitioner sets up a specific line of treatment which includes both clinical and non-clinical measures. The clinical measures in walls medications like blood thinners, muscle relaxants, anticonvulsants, vitamin and protein boosters which works together to remove the thrombosis. Apart from this, the non-clinical measures includes various therapies, exercises, diet and food restrictions which helps to boost up the recovery rate of the patient.

After reading this article, the readers can conclude that CVT is a very serious and life-threatening physical condition in which there is multiple number of blood clots in the brain which can cause haemorrhage and paralysis. To avoid the onset of this type of situation, one should have to take proper care of his or her body. if a person gets diagnostic with CVT, then they need proper clinical treatment and also with some non-clinical measures to set up a resized line of treatment and can also take the help of mechanical devices which helps to improve low vision.

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