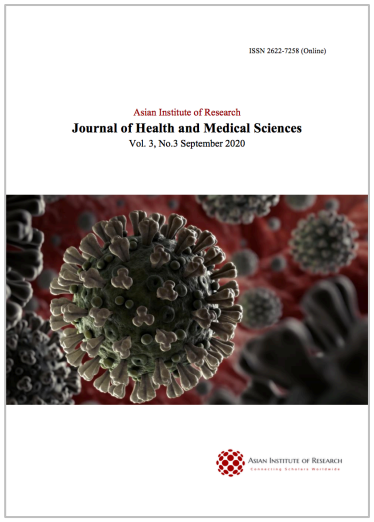

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Efficacy of Homeopathy in Children with Retinoblastoma (RB): A Review

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Abstract
Retinoblastoma (RB) is a rapidly developing cancer that develops from the immature cells of a retina, the light-detecting tissue of the eye and is the most common malignant tumor of the eye in children. There are very few known risk factors for retinoblastoma, but the main gene changes inside cells that can lead to retinoblastoma are now fairly well known. Early in fetal development, well before birth, cells in the retina of the eye divide to make new cells to fill the retina. At a certain point, these cells normally stop dividing and become mature retinal cells. But sometimes something goes wrong with this process. Instead of maturing, some retinal cells continue to grow out of control, which can lead to retinoblastoma. The article aims in describing the role of homeopathy in managing RB. The use of homeopathic remedies is raising in the modern area especially in chronic disease as well as DNA mutations like RB and is proved effective in clinical practice. Managing cases of RB in homeopathy is an art. However, more scientific research studies are needed to be done to validate the effectiveness, and explain the safety profile of homeopathic remedies for their anti-retinoblastoma potential. Because, homoeopathy system of medicine is stand on law of similia i.e. Similia Similibus Curenture.

Keywords: Homoeopathy, Retinoblastoma, RB1, Similia, DNA

Introduction

Retinoblastomais a cancer thatstarts in the retina, the very back part of the eye. It is the most common type of eye cancer in children. Retinoblastomais a rare form of cancer, affecting 1 in 15,000 to 1 in 30,000 live births. Retinoblastoma is considered a childhood cancer since 95% of cases occur in children less than 5 years of age. There seems to bean equal chance of the condition occurring in either eye, in either boys or girls, and regardless of race. About 75% of cases occur in one eye, and about 25% of cases occur in both eyes (Medbroadcast.com, 2020). Retinoblastomais a complicated subject that can be challenging for both medical professionals and affected families to fully understand. Imprecise terminology compound confusion.To avoid unnecessary complexity, it is important to use precise terminology when thinking or talking about retinoblastoma (Lee & Murphree, 2013). Retinoblastomais a malignant tumor of the embryonic neural retina. It affects young children under the age of 5 years. Tumours may be unilateral or bilateral,unifocal or multifocal.There are hereditary and non hereditary forms of the disease and the disease can be sporadic or familial. Intraocular growth occurs first, prior to invasion of structures within the globe or spread to metastatic sites. In developed nations, presentation with metastatic disease is unusual. However, metastatic disease not uncommon in developing nations, where it is a significant cause of morbidity and mortality (Lanzkowsky, 2010).

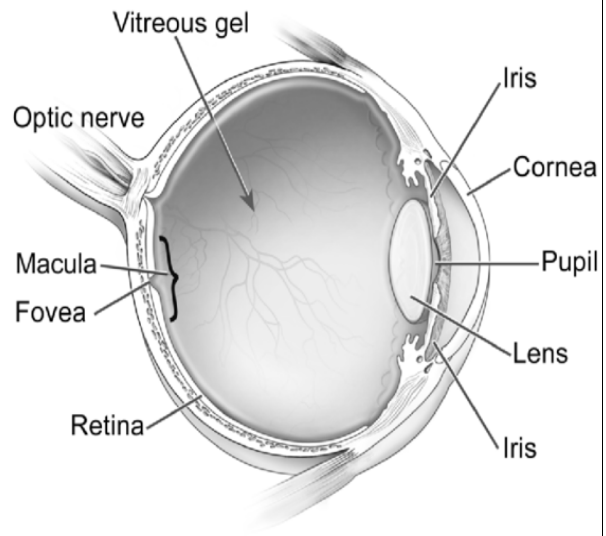

Figure 1: Normal anatomy of eye

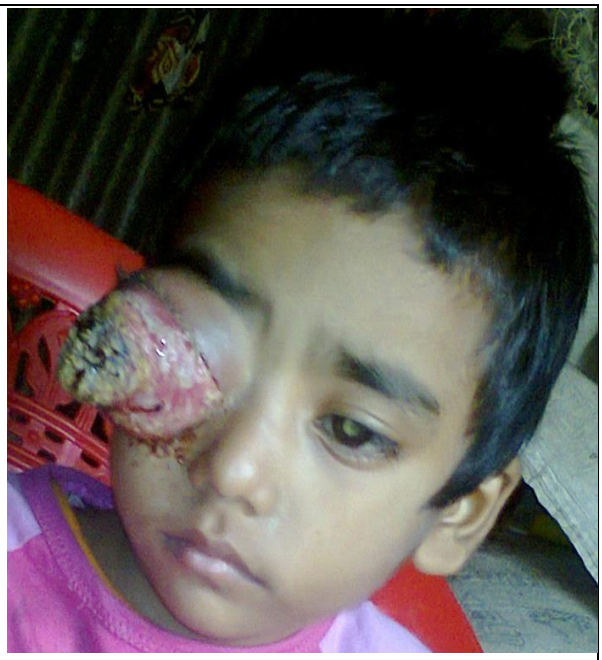

Figure2 : Retinoblastoma of eye

There are several Homoeopathic medicines to control RB, However, these medicines are used in accordance of symptoms similarity, family history and based on others predisposing factors, cause of genetic and chronic miasmatic background. So there is a need of alternative treatment to control and manage RB. This review aims to describe role of homeopathy in managing RB. The expression of this child disorder is manifested at multiple levels, thus affecting the quality of life of the child and the parents. Even with advancement in medical treatment, there are few hopes for such patient and at times not available for all. This study attempts to understand the scope of homoeopathy for such a challenging condition and to explore the concept of RB through the dynamicity of homoeopathic medicines.

Material and methods

This study is conductive with descriptive method and section is divided by subheadings, sub-sub headings. Methods that are already summarized, and indicated by a reference. All modifications to existing methods are described.

Literature Review of Retinoblastoma

Definition

Retinoblastoma is a rare type of eye cancer that usually develops in early childhood, typically before the age of 5. This form of cancer develops in the retina, which is the specialized light-sensitive tissue at the back of the eye that detects light and color (Reference, G., 2020). Retina is made up of nerve tissue thats enses light as it comes through the front of eye. The retina sends signals through optic nerve to brain, wherethesesignals are interpreted as images. A rare form of eye cancer retinoblastomais the most common form of cancer affecting the eye in children. Retinoblastoma may occur in one or both eyes (Mayo Clinic. 2020).

Classification and Staging

Classifying and staging retinoblastomais an essential first stepwhen planning how to manage a Childwith the condition; it also gives important information about prognosis. Classification schemes in cancer are mainly used to compare the results of different treatments and to enable a prognosis to be given (D., A., & S. (2018).

Table 1:Classification Systems forIntraocularRetinoblastoma

Group	International Intraocular Retinoblastoma Classification (IIRC)	Intraocular Classification of Retinoblastoma(ICRB)
Group A (very low risk)	All tumours are 3 mm or smaller, confined to the retina and at least 3 mm from the foveola and 1.5 mm from the optic nerve. No vitreous or subretinal seeding is allowed.	Retinoblastoma ≤ 3 mm (in basal dimension or thickness).
Group B (low risk)	Eyes with no vitreous or subretinal seeding and discrete retinal tumour of any size or location. Retinal tumours may be of any size or location not in group A. Small cuff of subretinal fluid extending ≤5 mm from the base of the tumour is allowed.	Retinoblastoma> 3 mm (in basal dimension or thickness) or • Macular location (≤3 mm to foveola) • Juxtapapillary location (≤1.5 mm to disc) • Additional subretinal fluid (≤3 mm from margin).
Group C (moderat e risk)	Eyes with focal vitreous or subretinal seeding and discrete retinal tumours of any size and location. Any seeding must be local, fine, and limited so as to be theoretically treatable with a radioactive plaque. Up to one quadrant of sub retinal fluid may be present.	Retinoblastoma with: • Subretinal seeds ≤ 3 mm from tumour • Vitreous seeds ≤ 3 mm from tumour • Both subretinal and vitreous seeds ≤ 3 mm from tumour
Group D (high risk)	Eyes with diffuse vitreous or subretinal seeding and/or massive, non-discrete endophytic or exophytic disease. Eyes with more extensive seeding than Group C. Massive and/or diffuse intraocular Disseminated disease including exophytic disease and >1 quadrant of retinal detachment. May consist of ‘greasy’ vitreous seeding or a vascular masses. Subretinal seeding may be plaque-like.	Retinoblastoma with: • Subretinal seeds> 3 mm from tumour • Vitreous seeds> 3 mm from tumour • Both subretinal and vitreous seeds> 3 mm From retinoblastoma

Group E (very high risk)	Eyesthathavebeendestroyedanatomicallyorfunctionallywithoneormoreof thefollowing: Irreversible neovascular glaucoma, massive intraocular haemorrhage, aseptic orbital cellulitis, tumour anterior to anterior vitreous face, tumour touching the lens, diffuse infiltrating retinoblastoma and phthisis or pre-phthisis.	• Extensive retinoblastoma occupying>50% globe or with • Neovascular glaucoma • Opaque media from haemorrhage in anterior chamber, vitreous or subretinal space. • Invasion of post laminar optic nerve, • choroid (>2 mm), sclera, orbit, anterior Chamber

Table 2: International Retinoblastoma Staging System (IRSS)

Stage	Clinical Description
0	Patient treated conservatively
I	Eye enucleated, completely resected histologically
II	Eye enucleated, microscopic residual tumour
III	Regional extension
A	Overt orbital disease
B	Preauricular or cervical lymphnode extension
IV	Metastatic disease
A	Heamatogenous metastasis (without central nervous system involvement) 1 Single lesion 2 Multiple lesions
B	Central nervous system extension (with or without any other site of regional or metastatic disease. 1. Prechiasmatic lesion. 2. Central nervous system mass. 3. Leptomeningeal and cerebrospinal fluid disease.

Causes

Retinoblastoma is caused by a mutation in the *RB1* gene on chromosome 13. This gene is responsible for producing a protein that functions as a tumor suppressor, and every cell in the body has 2 copies of the gene. When both copies are mutated, the cell divides uncontrollably, leading to tumor formation. About 60% of retinoblastomas are due to spontaneous (de novo) mutations that are nonhereditary. The remaining cases are due to a hereditary mutation that is passed down from one (or both) parents.

A mutation in the second copy of the gene then leads to tumor formation. Inherited retinoblastoma cases are more likely to involve both eyes with multiple tumours in each eye, and tend to develop before the first birthday, and may be associated with a separate tumor in the brain, called *trilateral retinoblastoma* in about 1 in 20 children with bilateral retinoblastoma (Specialists, T., 2020).

Every cell in the body contains a gene called RB1, which provides instructions for making a protein called pRB. This protein acts as a tumor suppressor, which means that it regulates cell growth and keeps cells from dividing too quickly or in an uncontrolled way. Children who develop retinoblastoma have one or more mutations in the RB1 gene in cells in the retina. Cells that contain a mutated gene are unable to produce functional pRB protein, and they therefore divide in an unregulated manner, forming a tumor. In a small percentage of children with retinoblastoma a larger section of genetic material is missing, and the chromosomal changes involve several genes in addition to RB1. Affected children usually also have intellectual disability, slow growth, and distinctive facial features (such as prominent eyebrows, a short nose with a broad nasal bridge, and ear abnormalities) (Columbiaeye.org. 2020).

Sign and symptoms of RB

Retinoblastoma is hard to diagnose early because the symptoms are not obvious. At first to notice a white reflection in child's pupil called the cat's-eye reflex. This is when you can actually see the tumor as the eye moves and light reflects off the tumor. Sometimes photographs are useful in picking up this abnormal light reflex. The child may have been squinting or having difficulty focusing both eyes on the same object. This is called strabismus and usually occurs if the tumor is located in or very near the visually most sensitive part of the eye. Symptoms occurring in later stages of the disease include a painful red eye and loss or decrease of vision in the affected eye (Cincinnatichildrens.org. 2020). Most often, however, parents notice following symptoms or signs such as:

- A pupil that looks white or red, instead of the normal black
- A crossed eye, which is an eye looking either toward the ear or toward the nose
- Poor vision
- A red, painful-looking eye
- An enlarged pupil
- Different-colour irises

Diagnosis of RB

Many tests are used to find, or diagnose, cancer. Also tests are done to learn if cancer has spread to another part of the body from where it started. It is called metastasis. For example, imaging tests can show if the cancer has spread. Imaging tests show pictures of the inside of the body. Doctors may also do tests to learn which treatments could work best.

For most types of cancer, a biopsy is the only sure way for the doctor to know if an area of the body has cancer. In a biopsy, the doctor takes a small sample of tissue for testing in a laboratory. If a biopsy is not possible, the doctor may suggest other tests that will help make a diagnosis.

Following these options are considered for diagnosing this type of cancer. Not all tests listed below will be used for every person.

- The type of cancer suspected.
- Child's signs and symptoms.
- Child's age and general health.
- The results of earlier medical tests.

The next step after observing any symptom is to have the child examined by a specialist, who will do a thorough ophthalmic examination to check the retina for a tumor. Depending on the child's age, either a local or general anesthetic is used during the eye examination. Anesthetic is a medication that blocks the awareness of pain. The specialist will make a drawing or take a photograph of the tumor in the eye to provide a record for future examinations and treatment. Additional tests may also be done to locate or confirm the presence of a tumor. In addition to a physical examination, the following tests may be used to diagnose retinoblastoma.

- Ultrasound.
- Computed tomography (CT or CAT) scan.

- Magnetic resonance imaging (MRI).
- MRI or CT scan of the brain.Blood tests.
- Lumbar puncture (spinal tap).
- Bone marrow aspiration and biopsy.
- Hearing test.

After diagnostic tests are done, doctor will review all of the results of RB patient. If the diagnosis is cancer, these results also help the doctor describe the cancer. This is called staging (Cancer.Net. 2020).

Homoeopathic concept for treatment of RB

RB is the most common primary tumor of the eye in infants and young children. This form of eye cancer is caused by uncontrolled division of the cells that make up the retina in the back of the eye, and requires prompt evaluation and treatment by a team of specialists. Though homeopathy is based on totality of symptoms similarity especially such kind of cancerous disorders like RB has a great scope treatment and management in it. At first has to sort out which symptoms are more important to tackle the spread of RB. Therefore we have to conscious to administer homeopathic remedy RB patients. This cancer begins with a change in the structure and function of a cell that causes the cell to divide and multiply out of control. The cells can subsequently invade and damage surroundings tissues, and cells can break away and spread to other areas in the body. Childhood cancer like RB can occur in the same part of the body as adults, but there are differences. Childhood cancer can occur suddenly, without early symptoms and have a high rate of cure. There are Different types of childhood cancer such as Leukemia, Hodgkin lymphoma, on Hodgkin lymphoma, Brain tumor, Spinal cord tumor, Osteosarcoma,Wilms tumor, Neuroblastoma, Rhabdomyosarcoma, Ewing Family tumours etc. With the main signs of RB like a pupil that looks white or red, instead of the normal black, a crossed eye, which is an eye looking either toward the ear or toward the nose, poor vision, a red, painful-looking eye, an enlarged pupil, different-colored irises etc. Others characteristic symptoms may arise along with childhood cancer mainly depends upon the type of cancer, some common findings are; weight loss, rashes, bleeding or excessive bruising, tiredness or excessive fatigue, recurrent infection, early morning headache often associated with vomiting, nausea with or without vomiting, persistent and recurrent pyrexia or fever of unknown origin, mass or lump in the region of neck, abdomen, pelvis, chest, or armpit etc. After doing repertorization homoeopathically, if we can deal with RB patients, hope cure would be possible like others cancerous disorders.

Homeopathic medicines for Retinoblastoma

Homeopathy is one of the most popular holistic systems of medicine. The selection of remedy is based upon the theory of individualization and symptoms similarity by using holistic approach. This is the only way through which a state of complete health can be regained by removing all the sign and symptoms from which the patient is suffering. The aim of homeopathy is not only to treat symptoms of childhood cancer like RB but to address its underlying cause and individual susceptibility. As far as therapeutic medication is concerned, several remedies are available to treat RB symptoms that can be selected on the basis of cause, sensations and modalities of the complaints. For individualized remedy selection and treatment, the patient should consult a qualified homeopathic doctor in person. There are following remedies which are helpful in the treatment of childhood cancer (RB) symptoms: Arsenic album, Bromium, Cadmium Sulph, Carbo Animalis , Carcinosin, Conium, Hydrastis, Lycopodium, Nitric Acid, Phosphorous, Phytolacca, Silicea, Antim Crude, Apis Mel, Arsenic Iod, Aurum Mur, Baptesia, Bellis P, Cadmium Sulph, Calcaria Carb, Carbo Veg, Graphites, Iodium, Kali Bi, Kali Iod, Kali Phos, Kali Sulph, Kreosote, Lachesis, Mercurius, Opium, SecaleCor, Sulphur, Thuja, and many other medicines.

Discussion

As homoeopathy is the method of scientific treatment with various kinds of medicines, can produce symptoms similarity,so it only can cure the diseases totally. Homeopathic medicines are selected after a full individualizing examination and case-analysis, which includes the medical history of the patient, physical and mental

constitution, family history, presenting symptoms, underlying pathology, possible causative factors etc. A miasmatic tendency (predisposition/susceptibility) is also often taken into account for the treatment of chronic conditions. We have studied and applied different remedies from Materia Medica is indicated case and thenfollow up satisfactory withour confidence leveland in the treatment of RB has become stronger. Most of the cases of RBs have constitutional etiology, and genetic matter but the exact cause is unknown. Causes of RB often found due to some precipitating factors; Physical or emotional stress, overall male or female children are more affected. Almost RB cases belonging to either fundamentally sycosis or dominantly tubercular miasm.

Results

The priority of Rb treatment by homeopathic symptomatic remedy is to preserve the life of the child, then to preserve vision, and then to minimize complications or side effects of treatment. The exact course of treatment will depend on the individual case and will be decided by the expert homeopathic partitionner with more precautions.

Conclusion

Homeopathy treats the person as a whole. It means that homeopathic treatment focuses on the patient as a person, as well as his pathological condition. The homeopathic medicines are selected after a full individualizing examination and case-analysis, which includes the medical history of the patient, physical and mental constitution, family history, presenting symptoms, underlying pathology, possible causative factors etc. A miasmatic tendency (predisposition/susceptibility) is also often taken into account for the treatment of chronic conditions. A homeopathy doctor tries to treat more than just the presenting symptoms. The disease diagnosis is important but in homeopathy, the cause of disease is not justified. Other factors like mental, emotional and physical stress that could predispose a person to illness are also looked for. Now a day, even modern medicine also considers a large number of diseases as psychosomatic. The correct homeopathy remedy tries to correct this disease predisposition. The focus is not on curing the disease but to cure the person who is sick, to restore the health. If disease pathology is not very advanced, homeopathy remedies do give a hope for cure but even in incurable cases, the quality of life can be greatly improved with homeopathic medicines.

Homeopathy is a holistic system of medicine. This means that homeopathy treats the human being as a whole. Detailed mental and physical symptoms of the whole being are taken into consideration while prescribing. This form of homeopathic treatment is called as constitutional treatment. In cases where the RBs are due to deep seated chronic disorders like others cancerous illness, this constitutional treatment is usually taken up by homeopathic physicians.

In the Allopathic mode of treatment, the treatment comprises of chemotherapy radiotherapy and combines therapy try to control the metastasis of RB. Unfortunately, these are not curative, but only control the situation. Timely administered homeopathic medicines help avoid surgery for RB and its inherent complications. In short, homeopathic treatment is targeted towards the root cause of the illness and hence the disease is treated from the core. Homeopathy believes in treating the patient and not just the disease. Though the exact cause is unknown of RB but gene (DNA) may be an important cause. Homeopathy is strongly recommended for management of RB, especially when they are small in size. Homeopathy has an exceptional proven safety record with the FDA with 200 years of clinical effectiveness. Since it treats in totality, it leads to a permanent long-lasting cure, rather than a temporary suppression of symptoms. Homeopathy has a very significant role to play in cases of RB.

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Conflicts of interest
Declare if any conflict of interest exists.

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