IMAGE: A MAP OF THE STARS OF THE ORION CONSTELLATION

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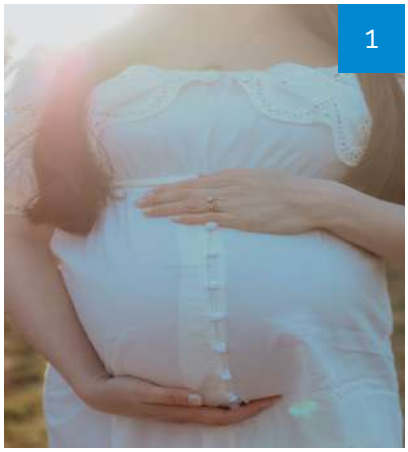

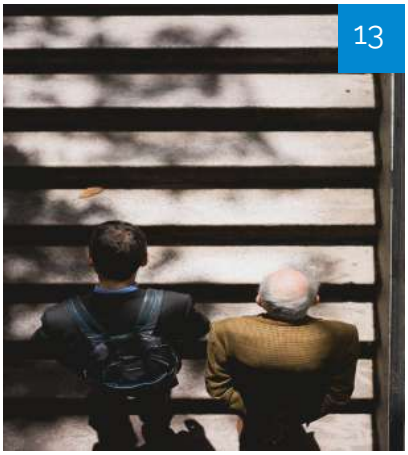

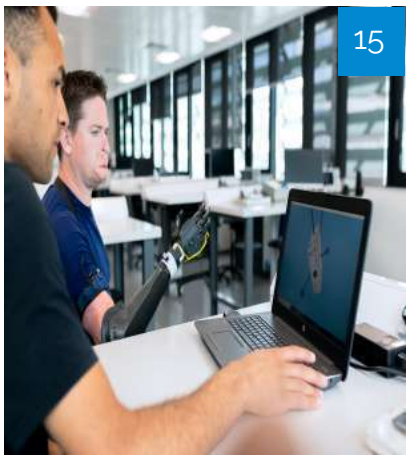

Syphilis Congenita - Infected in the Womb

Kielo Unho Saers

INTRODUCTION

Beckomberga hospital in Stockholm 1936. A six-year-old boy arrives from another hospital in Stockholm. Very strange, what did a six-year-old boy do in a mental hospital for adults. This smiling cute light-haired boy in the photo in the journal was diagnosed with congenital syphilis. A closer look in his papers showed that his mother also was hospitalized with a syphilis diagnosis. Why was the child not in the Lilla Hemmet institute, a natural place for children with hereditary syphilis in the Stockholm of those days, maybe he should be close to his mother while treated? But it was not so (1).

Shortly after his birth the boy was laid in a hospital for observation of syphilis, but he didn't have any symptoms at first. At the age of three months, he got a lasting bloody sniffle. After some time, the syphilitic impact on the skin showed up and he was taken to an emergency hospital and from there to Lilla Hemmet. The little child had syphilitic blisters, painful cracks in his mouth, jaundice, inflammation in his spleen, diphtheria and probably pulmonary tuberculosis. In addition, he had a double-sided glandular inflammation and a central parenchyma inflammation in one of his lungs. At the age of one he got chickenpox and his tonsils were surgically removed. For some unknown reason he also had a broken tibia (1).

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Shortly after his birth the boy was laid in a hospital for observation of syphilis, but he didn't have any symptoms at first. At the age of three months, he got a lasting bloody sniffle. After some time, the syphilitic impact on the skin showed up and he was taken to an emergency hospital and from there to Lilla Hemmet. The little child had syphilitic blisters, painful cracks in his mouth, jaundice, inflammation in his spleen, diphtheria and probably pulmonary tuberculosis. In addition, he had a double - sided glandular inflammation and a central parenchyma inflammation in one of his lungs. At the age of one he got chickenpox and his tonsils were surgically removed. For some unknown reason he also had a broken tibia (1).

The treatment history from Lilla Hemmet shows that from the age of two months he got a number of treatment series of salvarsan and bismuth. The salvarsan was as usual administered subcutaneously weekly for 4 to 6 weeks. The bismuth was given by intramuscular injection of 1-2 milliliters every fourth day. The cure consisted in a total of 7 to 10 injections. At the age of three the boy was free from syphilis according to a Wasserman test. He came to Beckomberga with the diagnosis Psychopatica luetica (luetica = syphilis) (1, 2).

The boy's intelligence was ordinary for his age and he had a very good memory and fast cognition. However, his behavior was very restive. He gobbed the fasces of those in charge, pulled down the bed clothing, poops in his bed and then lays it in someone else's bed. He is hyperactive, impulsive, excited, easily led astray and deceitful. It was said that his capers were a risk for his own life and the life of others (1).

After one year and four months in Beckomberga the boy was discharged to family care in the countryside and I hope that he got a good life after the hard beginning. This child was really not the only one to get syphilis already in the womb.

I. TRANSMISSION OF SYPHILIS TO A FETUS

The sickness of syphilis was terrible for the person who got it, but one of the most tragic and ill-fated consequences was that even the unborn child could get infected. The question of how the infection could be passed over to the fetus was much discussed among the doctors and researchers. Many different opinions were ventured, if it was the father or the mother who was the transmitter or if both. Further ideas were about if the father infected the fetus who then infected the mother. A very dainty question because the doctor had only the symptoms to decide on. Sometimes even the mother didn't know she had syphilis, it showed only up when the newborn was infected (19).

In the early 1800`s the opinion was that the fetus could not be infected by the mother, only through the father. Another opinion said that the infection first occurred after the delivery (12).

At the end of the 1800`s a Swedish researcher, af Ödmansson claimed in his dissertation that the father could not directly infect the fetus but the seemingly healthy mothers were infected. Others meant it was proven that only one of the parents needed to be infected. Cases were known where

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the father only had light symptoms but the child nevertheless was syphilitic. It was thought proven that the father had transmitted the syphilis since the mother had no symptoms (10, 18).

The famous French syphilis doctor and scientist professor Alfred Fournier from Paris presents in a well-founded conclusion the role of the father in the transmission of syphilis to the fetus accordingly: "if a syphilitic man marries a healthy woman the greatest danger for the child in this union is the man infecting his wife; because then the child is in danger of life and health." Of a totally opposite opinion was the contemporary doctor Jonathan Hutchinson who said:" I am firmly of the opinion that, in a large majority of instances in English practice, inheritance of syphilis is from the father, the mother having never suffered before conception" (23).

Still at the beginning of the 1900's the scientists discussed the question of how syphilis was transmitted to the fetus. As an example, it was said that a woman could get the infection from a syphilitic man who planted a syphilitic child in her. Most were however of one of two different opinions in the scientific world. The first is that a healthy mother could give birth to a syphilitic child without getting the sickness because these mothers were immune. This would indicate that a syphilitic man could transmit the infection directly to the fetus. Something that was believed to be proven because the mother in certain cases didn't have any symptoms at all. The other opinion was that healthy children of syphilitic parents were immune to the disease (10, 11, 17, 24).

In the 1920's it was known that syphilis was not hereditary but the disease was acquired through the parents. When the syphilitic child was in stadium 1 or 2 it was thought that the infection came from the father, which was most unlikely if the child was in stadium 3. In case the mother was healthy the infection first infected the mother and then the child (8).

The possibility to diagnose syphilis with the Wassermann test was of great importance for this newer approach where the mother infected the child and the father only could infect the mother. The Wassermann test also indicated the amount of treatment (10, 19).

In the 1930's it was believed that syphilis could be transmitted during a delivery (15).

In the 1950's it was known that all children who got infected during pregnancy also had an infected mother and that the father could not infect directly but only through the mother (5, 22).

Newly delivered who had syphilis were earlier said to have hereditary syphilis, meaning the fetus had got it infected with syphilis because of a genetic disposition or on conception. But since the mother and the fetus didn't have any circulatory system in common and high molecular substances like microbes couldn't pass through the placenta to the fetus, the mechanism of infection looked very mysterious. However, it was now known since the middle of the 1900's that a transmission like a syphilitic process could destroy the blood vessel barrier of the placenta, and make it possible for the syphilis spirochetes to pass from the mother to the fetus. The danger was greater when the mother was newly infected and the same holds true for untreated or too little treated mothers (7, 9, 16).

It may be added that by newborn the disease always was in stadium two, where the infection doesn't come through the skin (9, 18).

What occurred to the infected fetus?

Because syphilis is a sickness with periods free from symptoms the mother did not always know she was carrying the sickness. And since syphilis is a very tricky illness many different forms occurred like early or late miscarriages, babies with heavy symptoms who dye early, healthy looking babies who later evolve symptoms and all variations in between. The outcome depended of course also of the treatment or nontreatment of the mother to be (3, 8, 14).

In the 1840´s a thesis about childhood diseases, "Afhandling om Barns-Sjukdomar", inferred that the infected fetus was aborted spontaneously before delivery. "The children are dead and abandoned and in such a state of dissolution that

showed they had been lifeless for a long time in the uterus" (my translation) (4).

Clinically active physicians round the year 1900 also observed that even if the mother was healthy but the father had syphilis the first pregnancy ended with miscarriage in the third or fourth month. The fetus had then already been dead for two or three weeks and began to rotten or macerate. With the second pregnancy the miscarriage occurred, during the seventh or eighth month with the baby dying soon. The third time the mother usually gives birth to a nearly full-term baby, admittedly very weak and showing symptoms of syphilis soon after the delivery. It seemed that the earlier in the disease the fetus got infected, the more severe were the consequences. If the parents had been ill for a long time ago or were well treated, they could have healthy babies. Many miscarriages were said to be due to syphilis (8, 11, 18).

According to a case definition by Dr. Fournier the situation could be as follows. A well - developed woman marries at 19 and gets three healthy children during the first three years, one child however dies with an acute disease. After the third child the women gets infected with syphilis by her husband and then the following happened:

In the first pregnancy: a miscarriage in the fifth month.

The second pregnancy: the baby is born underaged and dies two weeks old. The third pregnancy: nearly complete but dead fetus.

The fourth pregnancy: premature and stillbirth.

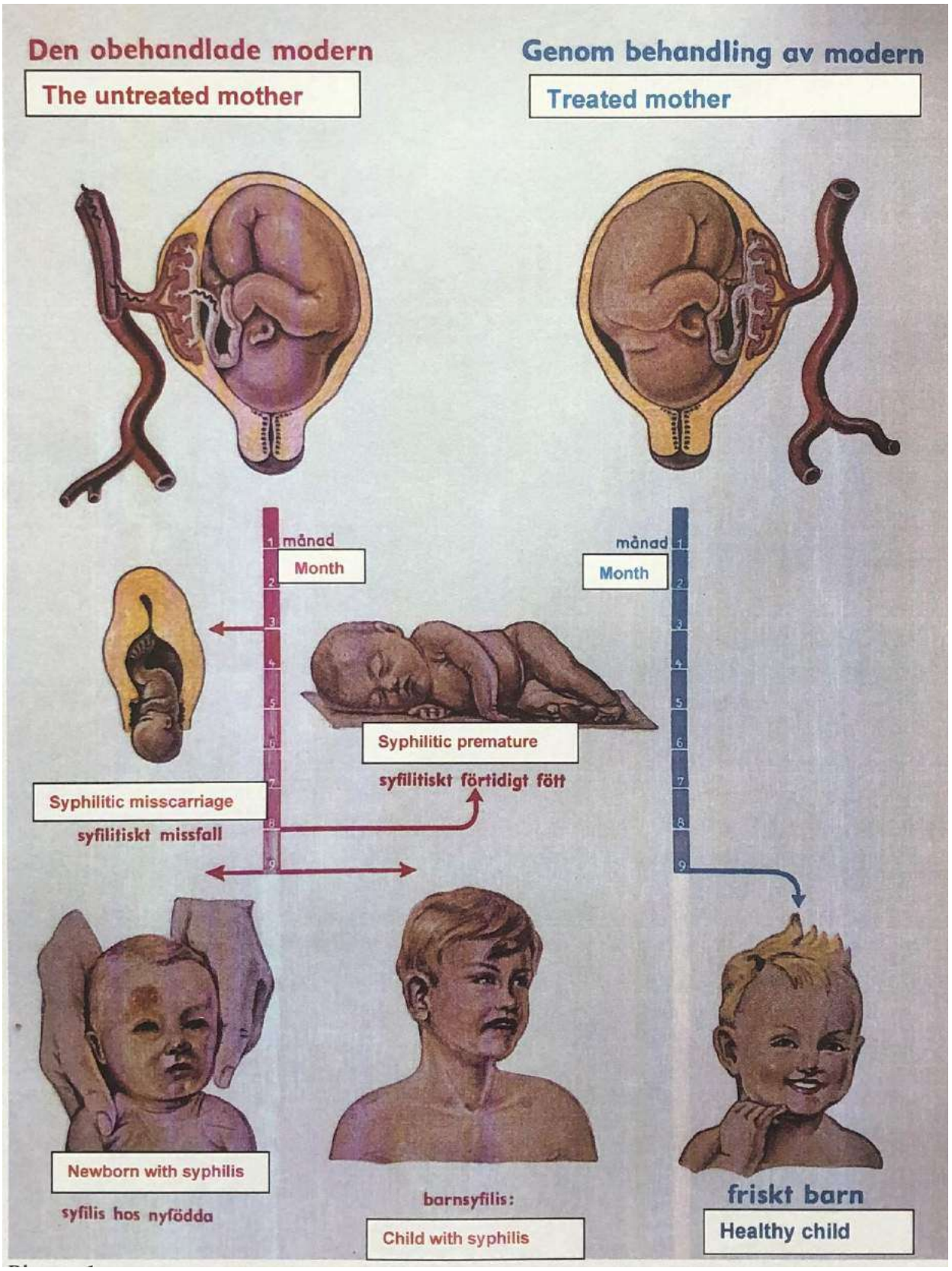
The fifth pregnancy: premature and stillbirth.

The sixth pregnancy: miscarriage after three and a half months. The seventh pregnancy: miscarriage in the sixth week (23).

Similar devastating cases were described by other doctors too at this time. An example is a wife with syphilis who was pregnant eleven times. Five cases ended with miscarriages or stillbirths. Six times the babies were alive but five died of fits early after birth and only one managed to stay alive (23).

At the close of the 19th century Dr. Fournier presented statistics from his contemporary colleagues and came to the conclusion that in total only one gravity in six resulted in a living baby. In the 1950's it was said that only 10 – 20% of the women with untreated syphilis got healthy babies (5).

The picture here shows what happened to the child of the untreated woman. Either a miscarriage or a premature with syphilis (Picture 1)



Picture 1: The picture is amended with English text by the author

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About breast-feeding a syphilitic child, it was thought that the mother could not get the infection from its own child. But it was thought indefensible or totally criminal to leave the child to a wet-nurse risking her to get infected. Because it was common with wet-nurses in those days it was not unusual for a wet-nurse with syphilitic symptoms to infect the suckling child. A syphilitic baby could also infect a healthy wet-nurse. The importance of the mother nursing her own syphilitic baby was emphasized from the beginning of the 1800´s (11, 14, 23).

II. SYMPTOMS IN NEWBORNS

Because the fetus is infected directly in its blood the infection gets spread in the whole organism and because its resistance against infections and its capacity against immunology is very weary hard hurt by the continuous transfer of syphilis in the newborn, the baby becomes veis spirochetes from its mother (5).

A newborn that is after all alive is normally so weak and miserable that it dies a few hours after delivery (Picture 2). The baby is often very lean and its skin sloppy and wrinkled. Its face looks as if it is of advanced age (13, 18).

The baby is snubby and has blisters of different sizes with a cloudy content on its soles that later spread to arms, legs, body and sometimes even its face (Picture 3). The sniffle is a slimy pussy catarrh of the nose with sores in the nostrils and sometimes even around the mouth. The inner organs are impugned as often as the skin. Lungs and liver are infected simultaneously and deafness and blindness occur because of the syphilis (8, 11, 18).

Picture 2: The picture shows a syphilitic child that died soon after birth (18)

Description of symptoms of new-borns in the 1930's:

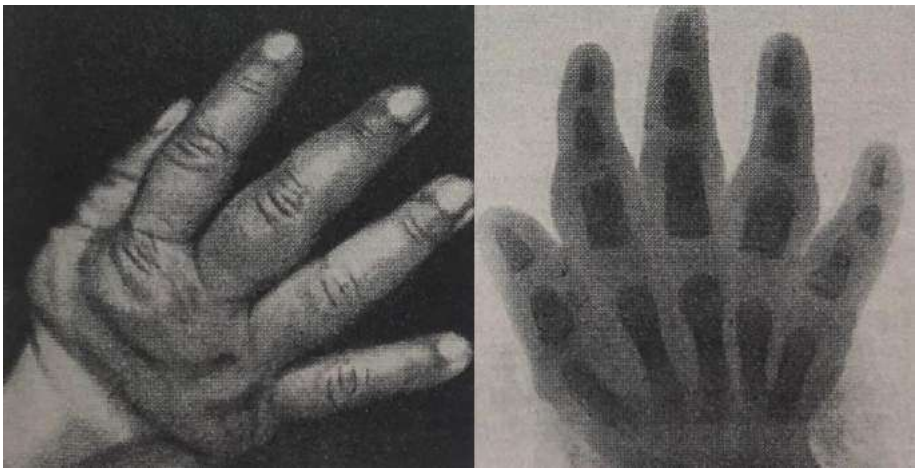
1. The placenta is unusual large by a mother who delivered a baby with syphilis
2. The Wassermantest is always positive by new-borns with syphilis.
3. The baby is often somewhat premature and shows up hard in a strange way. The skin is wrinkled and limp, often with yellow-brown pigments. The skin does not show any natural elasticity or resilience. The face is like an old mans. The baby is often hydrocephalic.
4. The mucosa of the nose is affected by a catarrhal pussy. In severe cases the pussy is mixed with blood. The baby screams have a strange sound.
5. The skin is affected by typical syphilitic changes (Picture 4 and 5).
6. With congenital syphilis there often are changes between cartilage and bone structure (Picture 6).
7. Inner organs like the liver and spleen can be moderately infested. The more difficult changes in the form of "flintstone liver" or pneumonia makes the baby die soon.
8. The central nervous system can be inflamed from the brain. Convulsions and cognitive disorders occur.

9. Changes in the blood are difficult anaemia and elevated sedimentation rate. (13).

Picture 3: Syphilitic sniffles (25)

Picture 4: Varying skin rash on a syphilitic newborn. The upper picture also shows Parrots paralysis in the left arm (13)

Picture 5: Platelet shaped rash and a combination with papules (13)



Picture 6: Syphilitic changes of the hand (13)

About 20 years later, in the 1950's the description of the newborn was the same but withs the diagnosis more refined. Descriptions were like follows:

The baby usually lives for 1 to 4 weeks, before death occurs. If the disease shows up later a stubborn sniffle is common. The baby is unruly and emaciated and has a dirty skin color. Breastfeeding is difficult due to nasal congestion.

The baby breathes with a strange snoring and sniveling sound. Soon rash shows up mostly by the anus, genitals and thighs. The flash consists of copper red blemish or scales. Sometimes the baby also suffers from fissures in the skin around the mouth and anus. The flora of symptoms among infected babies can be ordered in three groups that are partly overlapping (5).

1. The visceral type where the baby has a bleak gray skin of varying gray nuances and without rash of mucous symptoms. They have a large belly and enlarged spleen. Urea with albumen and white and red blood cells. Soon after birth oedema increases and not treated it dies after a few weeks.
2. The parental type where the baby showed rhinitis and changes in the skin. The skin has

a dirty grayish brown color, their palms and soles peeled and with vesicles filled with pus.

In the skin are seen reddish, somewhat elevated patches. Mouth and anus are surrounded by fissures with swollen trimmings.

3. Besides the two groups with clear symptoms early on there also are babies who initially do not have any symptoms besides being pale and having enlarged spleen but who under the first months slowly show symptoms of the visceral or parietal type. (5).

By x-ray changes in the skeleton can be seen. Sometimes an arm or leg can look paralytic. Even hydrocephalus is common among those infected in the uterus (5, 26)

Picture 7: New-born babies with syphilis (5, 27)

III. SYPHILIS CONGENITA TARDA

A few new-borns could be saved to live on. These children had difficulties with eating and with learning to walk. Many also have cognitive difficulties later in life (20, 21).

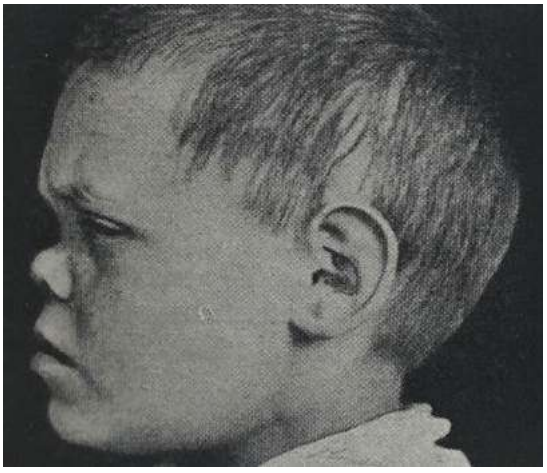
One of the first to link neurological symptoms to syphilis was the Swedish doctor Nils Rosén v. Rosenstein, who already in 1764 wrote that cramps could have venereal causes During the last three decades of the 19-th century a lot of notes were collected about syphilis being the cause of psychological backwardness and the question of a connection between physiological backwardness and syphilis interested the scientist very much (20).

Dr. Nonne presented at the beginning of the 20th century a number of neurological problems that children born with syphilis showed up. However, it was unclear if the symptoms were because of hereditary syphilis or due to infection later in life (24).

Some typical symptoms did show up among the syphilitic children when they grew up and were clearly because of syphilis. These were usually kept for life.

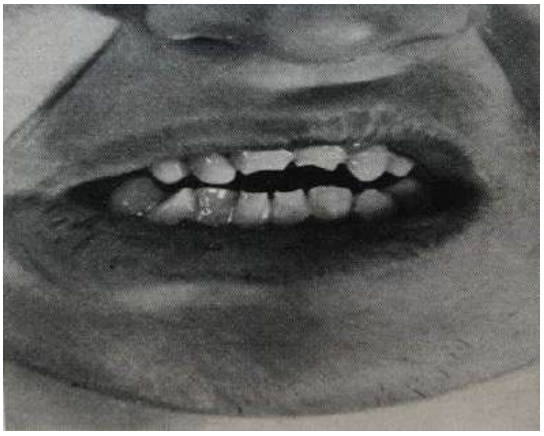
★ Saddle nose (Picture 8).
★ Rays of scars at the corners of the mouth, often called Fournier scars (Picture 9).
★ Deformed teeth called Hutchinson's teeth (Picture 10).
★ Eyes with inflamed cornea. These could evolve into blemish clouding of the cornea leading to
★ impaired visuality and even blindness (Picture 12).
★ Inflammation in the acoustic nerve leading to deafness.
★ Syphilitic gummatous infiltrations (Picture (5, 7, 11, 13, 18, 21).

Even some well documented cases where a woman with hereditary syphilis had infected the disease to the next generation who then infected the third generation (22).



Picture 9: Saddle nose (13)

Picture 9: Syphilitic scars at the wrinkles of the mouth (13)



Picture 10: Syphilitic tooth deformations (13)

Picture 11: Syphilitic gummatous infiltration on the nose of a girl born with syphilis (13)

Picture 12: Genetic changes due to syphilis (18)

IV. PROGNOSIS

If the baby is born with fully developed symptoms, then it is difficult for a treatment to make them disappear without severe traces. In the 1950's a baby born with syphilis had a good prognosis if it got under treatment early, especially if it could be treated with penicillin. Not so good prognosis however, when the infection was detected later. For example, those children got a more or less severe disorder of the intelligence. Typical symptoms like saddle nose, Hutchinson's teeth, radiating scars on the mouth angles (Fournier scars) and cornea clouding could stay lifelong (5, 7, 8)

The child could get infected by a mother that had been syphilitic long ago, because the disease could flare up during pregnancy so you had to be attentive (6).

V. TREATMENT

During the first half of the 19'th century the children with syphilis were treated with mercury or goat milk mixed with some mercury. The eyes were dabbed with warm milk mixed with a mercury compound. Opium was used as an analgesic. Until the 1910's children were treated with mercury which is poisonous. Even iodine compounds were administered. Mercury was largely replaced with salvarsan which made the treatment of syphilis way better. Also, bismuth compounds were introduced during the 1920's. In the end the discovery of penicillin could reduce, but not eradicate the disease of syphilis. Still there were some people who had markings of congenital syphilis for decades to come (5, 12, 26).

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Aging Anti Aging as Double Sword Mechanisms of Diseases

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ABSTRACT

Aging is the main mechanism of diseases like degenerative disorders. However, does the term (Excess Longevity) responsible for the induction or promotion of diseases? The next letter is discussing the existence of both phenomena at the same time.

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ABSTRACT

Aging is the main mechanism of diseases like degenerative disorders. However, does the term (Excess Longevity) responsible for the induction or promotion of diseases? The next letter is discussing the existence of both phenomena at the same time.

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Aging is a continuous process that affects both multicellular and unicellular organisms. The inevitable process has been noticed in humans and bacteria [1]. This theory can be explained at least partly by increased oxidative stress and decreased antioxidant capacity. Lots of cheap and traditional supplements like curcumin have been proposed to increase the antioxidant capacity, prolong life span and exert anti-cancer, anti-inflammatory, and antimicrobial roles [2]. However, can we say that cancer is a degenerative process? It seems that this is half of the story. Indeed, aging degenerative mechanisms explain many diseases but what about the opposite condition?

It is well known from the literature that strong antioxidant capacity demonstrated by high expression of NRF2 gene was associated with many tumors. The NRF2 expression reflecting strong antioxidant capacity promotes tumor progression, metastasis, and overcoming chemotherapy [3]. From that point of view, a new theory can be proposed which is that chronic multifactorial diseases like cancer, schizophrenia, and pterygium have dual pathology nature. These diseases are associated with both aging and excess longevity at the same time [4].

In the update published a few weeks ago, a simple experiment has been applied on pterygium tissue samples extracted after surgery. The tissue was subjected to immunohistochemistry staining with the degenerative oxidative marker glutathione, and at the same time, the slides were stained with Topoisomerase 1 that may reflect neoplastic and stem cell activity. The results showed that secondary aggressive growing pterygium showed both degenerative and progressive nature in the same tissue [5].

The dual pathogenesis disorder can be applied to another pathology which is schizophrenia. In that very complex disorder, both degenerative and developmental changes exist in the same occasion. Schizophrenia is a well known neuro-developmental disorder where the symptoms appear in teenage. However, later on, MRI imaging of the long-standing Schizophrenic brain demonstrated white matter aging as a part of the long-standing psychosis process [6,7].

An excellent example of the dual nature of chronic disorders is lung cancer. There are common types of lung cancer one of them is squamous cell carcinoma which is related to smoking risk and more common in males and may represent over oxidative senescence mechanism, and on the other hand, there is the adenocarcinoma type that is more common in females and related to other risk factors other than smoking [8,9].

In my opinion, the biological clock seems to have different roles from the chronological clock, fast

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clock induces aging-related disease model and too young cells stimulate stem cell function inducing cancer and developmental disorders, however, how both double natures of disease model occur in the same time is another more complex story.

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ABSTRACT

Background: The gold standard for hernia repair has remained a tension free, permanent, simple to perform and safe repair. The absolute achievement of this has remained elusive. For a long time, the Mesh hernioplasty was considered the closest to this standard and was adopted by the European Hernia Society as the procedure of choice. The prosthetic Mesh, mostly poly-propylene mesh, has many inherent drawbacks. It is costly, mostly non-available in poor countries, carries the risk of mesh displacement and hernia repair failure, and is associated with high risk of mesh infection that will require subsequent removal. The Desarda No-mesh, biological tissue repair obviates the noted drawbacks associated with the mesh, and in addition, provides a strong, mobile and physiologically dynamic posterior inguinal wall that effectively limits repair failure. This can be a good alternative to the Modified Bassini Repair that is fraught with high recurrence.

Objectives: To compare the short and medium term outcomes between the Modified Bassini and the No-mesh Desarda hernia repair.

Keywords: randomised trial, desarda repair, modified bassini repair.

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ABSTRACT

Background: The gold standard for hernia repair has remained a tension free, permanent, simple to perform and safe repair. The absolute achievement of this has remained elusive. For a long time, the Mesh hernioplasty was considered the closest to this standard and was adopted by the European Hernia Society as the procedure of choice. The prosthetic Mesh, mostly poly-propylene mesh, has many inherent drawbacks. It is costly, mostly non-available in poor countries, carries the risk of mesh displacement and hernia repair failure, and is associated with high risk of mesh infection that will require subsequent removal. The Desarda No-mesh, biological tissue repair obviates the noted drawbacks associated with the mesh, and in addition, provides a strong, mobile and physiologically dynamic posterior inguinal wall that effectively limits repair failure. This can be a good alternative to the Modified Bassini Repair that is fraught with high recurrence.

Objectives: To compare the short and medium term outcomes between the Modified Bassini and the No-mesh Desarda hernia repair.

Methods: A total of 50 adult male and female patients with primary inguinal hernias were randomly allocated intraoperatively to undergo Desarda No-mesh or Modified Bassini inguinal hernia repair. Each patient is allocated to either of the procedures through balloting.

Results: From our evaluation of the short-term and medium-term outcomes, such as surgery duration, immediate post-operative pain, ability to achieve normal gait, early return to work and early recurrence; Desarda technique is effective and safe, with the least post-operative complications compared to Modified Bassini Inguinal Hernia repair.

Conclusion: Desarda repair is easy to perform and has been shown to take shorter operative time. Also, it is associated with less post-operative pain and there is no need of mesh. It is therefore cost effective and is similar to Lichtenstein method in terms of early recurrence rate. Desarda hernia repair can be a good substitute to Lichtenstein repair and should be recommended for younger patients because of the proposed lesser risk for post-operative sexual dysfunction and subfertility.

Keywords: randomised trial, desarda repair, modified bassini repair.

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I. INTRODUCTION

A hernia is an abnormal protrusion of a viscus or a part of it, through an opening or weak point in the wall of the cavity containing the viscus. Hernia, especially Inguinal Hernia, is a common presentation at the General Surgery Unit. The life time risk of developing a hernia is 10% for all populations, 94% of all hernias are found in the groin region and 95% of male hernias are inguinal, while 9% of female hernias are femoral

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[1]. The estimated life time risk for developing Inguinal hernia is 27% for the male and 3% for the female [2]. The inguinal hernia is refuted to be the most common type in Africa [3]. Surgical repair of an inguinal hernia is the most effective treatment for this disease, but, it is inherently associated with many problems, amongst which are; post-operative pain and recurrence [4]. The ideal surgical repair should be easy to perform, tension free, secure, safe and cost effective [5]. The Desarda No-mesh repair is said to have met these criteria and is even slightly superior to Lichtenstein hernia repair [6], the gold standard repair adopted by the European Hernia Society [7].

The Lichtenstein Mesh hernioplasty is not free of many drawbacks despite being the gold standard. It is very costly, especially for the poor rural patient in Africa, mostly unavailable, except in big cities. It is also associated with Mesh migration or displacement and troubling Mesh related surgical site infection that may necessitate its removal [8]. It is also said to be associated with higher incidence of post-operative pain, feeling of foreign body sensation and mesh related sexual dysfunction and infertility when used on a young male [9].

The most popular Inguinal hernia repair method in Nigeria is the Modified Bassini repair [10], and it is also the most practiced in sub-Saharan Africa, because it is simple to perform, the skill to perform it is abundant, even in rural hospitals; and very cheap [11]. The Desarda repair although novel, it seems to have met the criteria of an IDEAL hernia repair, does not use a prosthesis, the weakened conjoined muscles or transversalis fascia for repair. It is also cheap and carries lower complications rate [12]. This study was therefore conducted to compare the early and intermediate outcomes of the Modified Bassini and the Desarda hernia repair, with the aim of adopting the Desarda repair as a substitute for the costly Lichtenstein repair where the prosthetic mesh is unavailable.

II. PATIENTS AND METHODS

This is a randomised controlled trial, involving 50 adult patients, both males and females, that presented at the General Surgery unit of the State Specialist Hospital Potiskum, Yobe state, Nigeria. The study was conducted between July 2021-December 2021, as a single blinded, single centre, randomised controlled trial. Both elective and acute cases of Inguinal hernias admitted for surgery during the period were recruited. All patients 16 years of age and above (15 years and below is the cut off age for the hospital) were recruited. All patients with poor immune status, on cytotoxic chemotherapy, with bleeding diathesis and those with ECOG/WHO stage 4 performance status and those who declined consent for surgery were excluded. Informed consent was obtained according to the Helsinki guidelines and Ethical clearance was given by the hospital management.

Each patient was allocated to either the Modified Bassini or Desarda repair through balloting. The surgeries were conducted by the researchers under Local, regional or general anaesthesia, depending on the presentation and the duration of the hernia. Regional anaesthesia was used for long standing uncomplicated inguinal hernia because, of the possibility of incarceration from adhesions. All complicated cases were treated using general anaesthesia.

With patients in supine position, routine cleaning and draping is done, exposing only the operative area. An 8-10 cm oblique groin incision is used for each procedure and similar steps are taken through the subcutaneous tissue and external oblique aponeurosis as in standard text books.

The EOA is opened from the upper crux of the superficial ring to expose the arching fibres of the internal oblique muscle, which are retracted laterally to reach the spermatic cord. The cord dissection to separate the sac and subsequent herniotomy are similar for both procedures. The major difference is in the repair of the weak posterior wall of the inguinal canal. The medial leaf of the external oblique aponeurosis (EOA) was sutured to the shelving edge of the inguinal ligament from the pubic tubercle to the deep inguinal ring using Polyamide number 1 round body with continuous sutures. The first two sutures were taken from the anterior rectus

sheath where the EOA interdigitate with it; the last suture was taken with the aim of narrowing the internal ring in those with Nyhus type 2 hernia without constricting the spermatic cord.

Each suture was passed first through the inguinal ligament, then the transversalis fascia and the EOA. The index finger of the left hand was used to protect the femoral vessels and Collingwood Stewart hernia ring was used to retract the cord structures laterally while taking lateral sutures.

A splitting incision was made in the sutured medial leaf of the EOA, partially separating a strip from it with a width of 1.5 to 2 cm, equivalent to the gap between the muscle arch and the inguinal ligament. This splitting incision was extended medially up to the symphysis pubis and laterally up to 1-2 cm beyond the deep ring. The medial insertion and lateral continuation of EOA flap were kept intact. The upper free border of the strip of the EOA previously sutured to the inguinal ligament was later sutured to the conjoint tendon lying close to it with Polyamide number 1 with continuous sutures throughout its length. The aponeurotic portion of the internal oblique muscle was used for suturing to this strip to ensure a tension free suturing. The newly created strip of EOA was placed behind the cord to form a new posterior wall of the inguinal canal. Each patient was then asked to cough to demonstrate the increased tension on the strip exerted by the external oblique muscle. This increased tension exerted by the external oblique muscle was the bedrock of this repair. The spermatic cord was placed in the inguinal canal and the lateral leaf of the EOA was sutured to the newly formed medial leaf of the EOA in front of the cord again using Polyamide number 1 sutures. IF there is difficulty in a tension free suturing of the remaining upper lip of the EOA, undermining of the newly formed medial leaf of the EOA on both of its surfaces facilitate its approximation to the lateral leaf. The first stitch for the reconstruction of the anterior wall of the inguinal canal was taken between the lateral edge of the newly formed upper portion of the EOA and lower leaf of the EOA. This was followed by closure of the superficial fascia and the skin as usual.

In modified Bassini repair, the cord was retracted away from the posterior wall, and then interrupted polyamide 1/0 sutures were used to approximate the conjoint tendon to the medial lip of the inguinal ligament. The first stitch was put in the periosteum over the pubic tubercle. The sutures were placed at intervals of approximately 1cm between them. The most lateral suture is used to narrow the deep ring when it is dilated to <2cm. The cord was then placed back on the strengthened posterior wall of the canal. The aponeurosis of external oblique was repaired with continuous Vicryl 2/0 and the superficial ring reconstructed to match the size of the cord.

The early outcomes studied were duration of surgery, post-operative pain, duration of hospital stay, and early post-operative complications and recurrence. Early ambulation was encouraged postoperatively, beginning from 12 hours after surgery for those done under regional or general anaesthesia. Patients were given oral analgesia and prophylactic antibiotics were given for those with acute presentation. Sutures were removed on day 7. Follow-up was done at 1 week, 4 weeks, 3 months and 6 months. General and targeted physical examination was done during every visit to assess the early and intermediate outcomes. All data obtained was assessed using the Statistical Package for Social Sciences, version 20.0 (IBM, Armonk, NY, USA). Continuous variables were presented as mean ± SD. Categorical variables were expressed as frequencies and percentages.

The Pearson's chi square test was used to determine the relationship between two categorical variables. $P<0.05$ was considered statistically significant.

III. RESULTS

A total of fifty (50) subjects were recruited. Males constituted 92%, females 8%, giving a male-female ratio of 12:1. The mean age was 40.3 (+_2.98) and the age range was 18-75 years. A total of 44% presented with right sided inguinal hernia, 44%, had left sided inguinal hernia and the remaining 12% had bilateral inguinal hernia.

Half of the patients had an indirect inguinal hernia with a dilated deep ring (50%), 24% had a direct hernia, 18% had an indirect hernia with an intact deep ring, 8% had a pantaloon hernia and none had a femoral hernia. More than half of the patients (56%) were operated under spinal anaesthesia, 42% via local infiltration and one (1) patient was operated on using general anaesthesia. Twenty-five subjects each (50%), had the Modified Bassini repair and the Desarda No-mesh hernia repair respectively.

The surgery was done within 20-45 minutes in 62% of the subjects, within 45-60 minutes in 30% of the subjects, and in only 8% of the subjects that the surgery lasted for more than an hour. Pain was measured using the visual analogue scale (VAS), with 0-30 mm signifying mild pain, 31-60 mm moderate pain, 61-90 severe pain and 91-100 excruciating pain. Postoperative pain according to VAS (Mean ± SD) on day 1 was 31.2 (±02.0). Up to 68% of the subjects, experience mild to moderate post - operative pain, only 4% experienced severe pain (Figure 1). The severe pain was associated with the Modified Bassini Repair (Table 1).

There were no recorded intra-operative complications in 84% of the subjects. Only 6% each of the patients had Seroma and Haematoma respectively, and 4% developed Surgical Site Infection (Table 2). Both Seroma and Haematoma formation are more associated with the Desarda repair than Modified Bassini repair (Table 3).

More than half (56%) of the cases were done as Day Care Surgeries, 36% were discharged within 48 hours and only 6% stayed on admission for more than 48 hours (Table 4). All the patients that stayed for more than 48 hours had the Desarda hernia repair (Table 5). Majority of the patients (60%) achieved normal gait the 12 -24 hours after surgery and returned to work within the first week of the surgery, 28% within 2-3 weeks, only 12% took more than 3 weeks to resume normal work (Figure 2). Up to 83.3% of those who took more than 3 weeks to return to work are the patients with post-operative complications like seroma, haematoma or SSI (Table 6). The degree of posterior wall weakness and dilatation of the deep ring increases with age (Table 7). The weaker the posterior wall, the more dilated the deep ring, also the longer the duration of surgery. Most surgeries that lasted for an hour or above are also those with weaker posterior wall (Table 8). This relationship also translates into more post-operative complications, irrespective of the type of the procedure done (Table 9). No recurrence was recorded during the short period of the study (Figure 3).

IV. DISCUSSION

Inguinal hernia has remained a major problem in Africans, the demand for its surgical repaired has considerably surged forward through the years to the extent that it is mainly done as a day case procedure in most tertiary health centres; even in secondary and primary health facilities in order to satisfy this demand [13-14]. This fact has been adduced to as the cause of decline of prevalence of strangulated inguinal hernias or giant hernias [15-16]. A remarkable tribute to the tremendous work of our older generation of surgeons. The exact reasons for the high prevalence of Inguinal Hernia in adult male Africans has remained a mystery. Reports from East Africa suggested an anatomical susceptibility, particularly, the low pubic arch prevalent in most male Africans [17].

This is thought to weakens the pelvic Myopectineal fascial system [14]. In the study, males constituted 92% of the subjects, females 8%, giving a male-female ratio of 12:1. Other studies have also noticed a male preponderance for Inguinal hernia [18]. Perhaps, due to the descent of the Testes and the higher exposure of the male to strenuous physical activities. The mean age recorded was 40.3 (+_2.98), with an age range of 18-75 years. Gogler reported the age of 45 years as the age of peak incidence in Africans [19]. This may coincide with the age of onset of bladder outflow obstruction due to benign prostatic hyperplasia and also the beginning of the age related weakening of Fruchaud's pelvic Myopectineal orifices. The mean age reported by Gopal et.al was 46.7 also, and the age range was 16-85 years [18]. There seems to be no preponderant side for the Inguinal hernia in our study. The right sided and left sided

inguinal hernia occurred at 44% each, and the remaining 12% had bilateral inguinal hernia. Half of the patients had an indirect inguinal hernia with a dilated deep ring (50%), 24% had a direct hernia, 18% had an indirect hernia with an intact deep ring, 8% had a pantaloon hernia and none had a femoral hernia from the study. Some Authors have reported a slight preponderance of the Right-sided inguinal hernia (64%), followed by left-sided (28%) and bilateral (8%). This has been attributed to the late descent of the right testis. Perhaps, our small sample size may be the cause of such unusual finding. From our study, majority (68%) of the subjects presented with an indirect inguinal with significant dilatation of the deep ring and 8% had both the direct and indirect hernias on same side (pantaloon hernia). Desarda MP [20] himself also noticed the predominance of the Indirect type (74%), had similar proportion of the direct hernias as in our study but, a very small proportion of the pantaloon hernia. This pattern was also replicated in his second paper on the Desarda repair [21]. The wide age range beginning from 16 years and the predominance of the males at a ratio of 12:1 may explain the higher percentage of the indirect inguinal type in this study. The direct is often seen as an acquired case after a long duration of strenuous physical activity or multiple pregnancies in the female.

Regional spinal anaesthesia was our anaesthesia of choice, used on 56% of those operated, 42% via local infiltration and on 1 patient the general anaesthesia was used. Situma from Kampala-Uganda used local infiltration for both the Modifies Bassini and Desarda repair [5]. No reason was given for the choice of the local infiltration only. Gopal et.al [18], like us, used regional anaesthesia in96% of his patients, local anaesthesia was given to 4% of the patients. No general anaesthesia was used [18]. Desarda MP in ground breaking work [20] on 229 patients, used regional anaesthesia on 84% of the patients operated, 14.8% had the surgery under local and 0.43% under general anaesthesia. We chose regional anaesthesia because majority of our patients presented within 2 years or above after noticing the hernia; with very high risk of incarceration due to adhesions (Table 10). With a Pearson's chi square result of 0.000, less than p-value of 0.005; this is statistically significant. Equal number of patients had either Modified Bassini or Desarda repair, 50% each.

The mean duration of surgery was 48.08 (+_ 1.46) and in 62% of the patients, the surgery was done within 20-45 minutes, within 45-60 minutes in 30% of the subjects, and in only 8% of the subjects did the surgery lasted for more than an hour. Longer duration for surgery is associated with the Desarda repair. Up to 66.7% of surgeries that lasted between 45-60 minutes are the Desarda repairs and 100% of those that took more than an hour are the Desarda repairs (Table 11).

The need for raising a flap from the EOA, the increased number of suturing for reconstruction and the occasional need for undermining the remaining medial shelf of EOA as a advancement flap to allow for easy reconstruction of the anterior wall; will all account for the longer duration needed to perform the Desarda repair.

With a Pearson's chi square correlate of X^2= 0.016, the difference in duration is not statistically significant (Table 11). The mean operative period reported by Gopal et.al [18] was 54.86 minutes (range 40-120 minutes). Like our study, they completed up to 80% of the Desarda repairs within 60 minutes. The study by Mitura et al, comparing Lichtenstein and Desarda repairs, the mean duration for Desarda's repair was 56.6 minutes [22]. This is about 9 minutes longer than our mean duration. Perhaps, the choice of only Specialist Surgeons as the operators may account for our improved speed.

Our mean postoperative pain according to VAS (Mean ± SD) on day 1 was 31.2 (±02.0). Up to 68% of the subjects, experience mild to moderate post-operative pain, only 4% experienced severe pain (Figure 1). The severe pain was associated with the Modified Bassini Repair (Table 1). The work done by Mitura et al [22] reported a mean VAS score on a scale of 1-10 to be 3.3 on the first postoperative day in Desarda's group. This is similar to 33.0 on the scale we used, obviously a higher post-operative pain average. Manyilirah et al [23] also reported a mean post-operative pain

score based on VAS to be 2.73 (± 1.64) for Desarda's group. A slightly lower average than our study. They however, had a lower percentage of surgeries done under local anaesthetic infiltration.

Although the Desarda repair is associated with more dissection and a higher number of suturing, the lack of tension along the line of repair may be responsible for the decreased post-operative pain compared to the tension repairs.

Majority of the patients (60%) achieved normal gait and returned to work within the first week of the surgery, 28% within 2-3 weeks, only 12% took more than 3 weeks to resume normal work (Figure 2). Up to 83.3% of those who took more than 3 weeks to return to work are the patients with post-operative complications like seroma, haematoma or SSI (Table 6). Situma et.al at Kampala-Uganda, reported that, for both the groups in Modified Bassini and the Desarda repair, they achieved their normal gait by the 10th day after the surgery. The mean duration for the assumption of normal gait for the two groups was similar, at 3.62. The range for the Desarda group was 1 – 7 (6) days, and for the Bassini group was 1 –9 (8) days [5]. A result almost similar to ours was documented by Kyamanywa et al at Mulago hospital Uganda, after conducting a randomised trial comparing the Lichtenstein mesh repair with modified Bassini hernia repair [24]. The longer period before resumption of normal gait was noted in the Desarda group, especially, those who resumed after 3 weeks. But, it is evident that the delay was because of the post-operative complications recorded (Table 6). Both methods were considered to some degree to be tension methods by Situma et. al [5]. Tension is said to be created even in the seemingly tension free Desarda's technique, particularly, during the reconstruction of the anterior wall of the inguinal canal with the new medial edge of external oblique muscle and its lateral edge. This is the reason why undermining of the new medial edge as an advancement flap is strongly advocated [18,24,25]. No evidence of recurrence was seen during the short period of the study.

V. CONCLUSION

Although there is a slight difference in the mean operative time, post-operative pain and early return to work between the two methods of hernia repair; the difference is not statistically significant. The Desarda has the added advantage of having the qualities of Lichtenstein repair without the problems associated with the prosthetic mesh.

Recommendation: A randomised controlled trial comparing the Desarda No-mesh repair with the Lichtenstein repair should be done widely with the view of adopting the Desarda repair as the gold standard.

Conflict of interest: None declared

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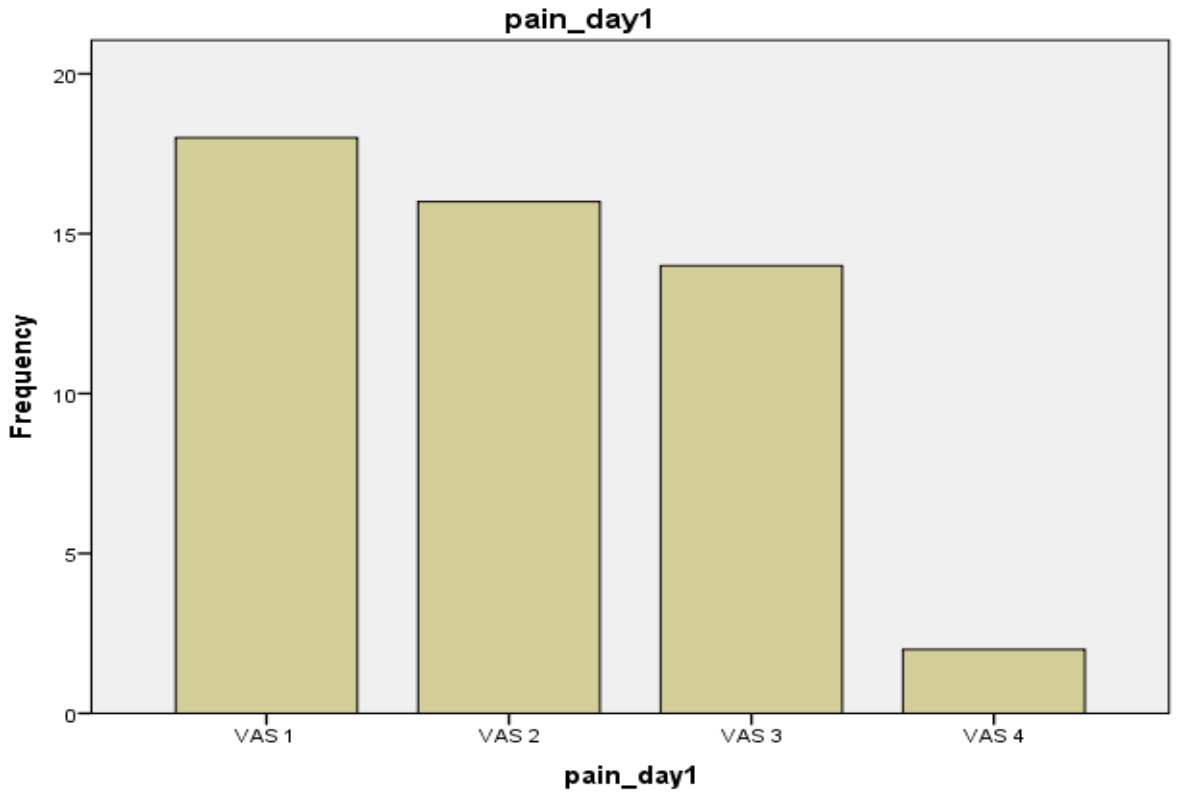

Figure 1: Showing the severity of post-operative pain on day one

Table 1: Showing relationship between the surgery type and pain

SURGERY	pain_day1				Total
	VAS 1	VAS 2	VAS 3	VAS 4	
modified bassini repair	9	7	7	2	25
desarda repair	9	9	7	0	25
Total	18	16	14	2	50

$X^2=0.522$, $P=0.005$

Table 2: Showing the distribution of complications

COMPLICATION	Frequency	Percent
seroma	3	6.0
haematoma	3	6.0
wound infection	2	4.0
nil	42	84.0
Total	50	100.0

Table 3: Showing relationship between surgery type and complications

SURGERY	complications				Total
	seroma	haematoma	wound infection	nil	
modified bassini repair	1	1	1	22	25
desarda repair	2	2	1	20	25
Total	3	3	2	42	50

$X^2=0.859$, $P=0.005$

Table 4: Showing distribution of hospital stay

HOSPITAL STAY	Frequency	Percent
day case	29	58.0
2 days	18	36.0
3 days and above	3	6.0
Total	50	100.0

Table 5: Showing relationship between surgery type and hospital stay

SURGERY	hospital_stay			Total
	day case	2 days	3 days and above	
modified bassini repair	19	6	0	25
desarda repair	10	12	3	25
Total	29	18	3	50

$X^2=0.020$, $P=0.005$

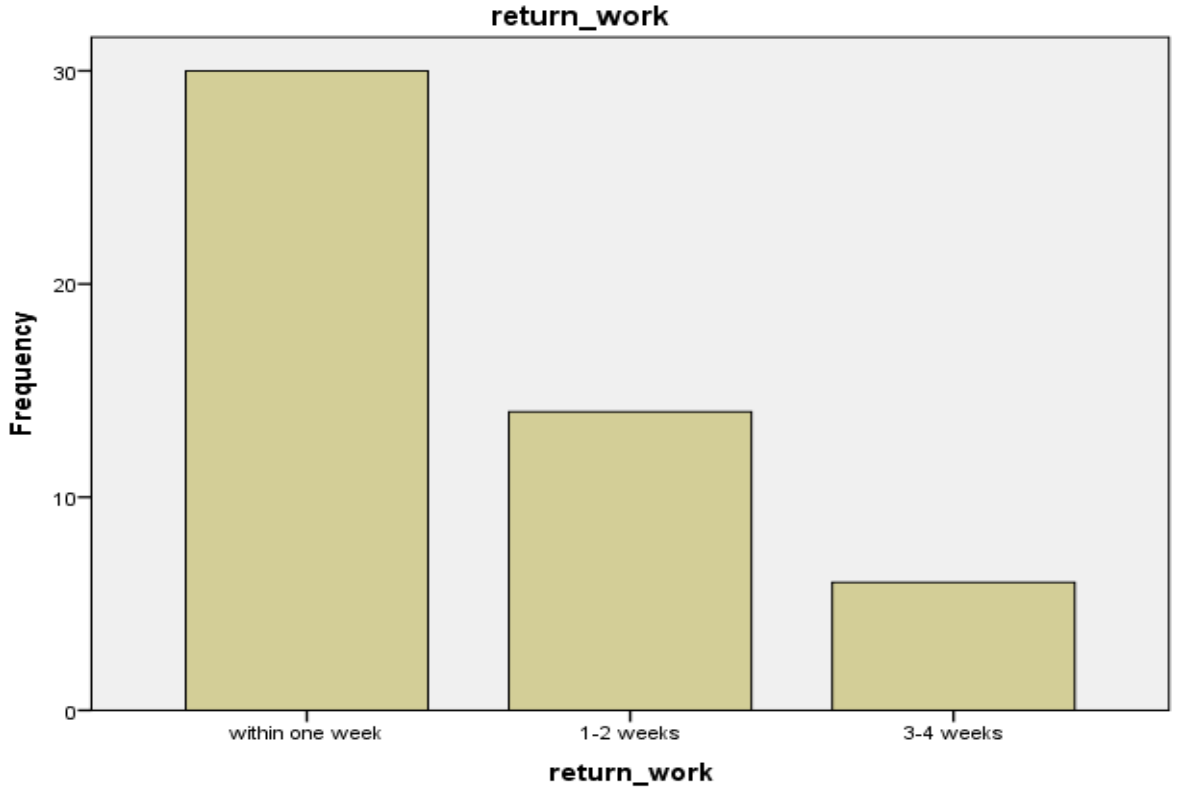

Figure 2: Showing the distribution of the days of return to work

Table 6: Showing relationship between return to work and complication

COMPLICATIONS	return_work			Total
	within one week	1-2 weeks	3-4 weeks	
seroma	2	0	1	3
haematoma	0	1	2	3
wound infection	0	0	2	2
nil	28	13	1	42
Total	30	14	6	50

$X^2=0.000$, $P=0.005$

Table 7: Showing relationship between age and posterior wall weakness

AGE	nyhus_type				Total
	indirect with intact deep ring	indriect with dilated deep ring	3	4	
16-25 years	5	2	1	0	8
26-35 years	4	9	0	1	14
36-45 years	0	10	1	1	12
46-55 years	0	3	4	0	7
56-65 years	0	1	3	1	5
66 and above	0	0	3	1	4
Total	9	25	12	4	50

X^2=0.000, P=0.005

Table 8: Showing relationship between posterior wall weakness and longer duration of surgery

	surgery_duration			Total
	30-45minuts	45-60minutes	60minutes and above	
indirect with intact deep ring	9	0	0	9
indriect with dilated deep ring	17	6	2	25
3	5	6	1	12
4	0	3	1	4
Total	31	15	4	50

X^2= 0.020, P=0.005

Table 9: Showing relationship between degree of posterior wall weakness and post operative complications

NYHUS TYPE	complications				Total
	seroma	haematoma	wound infection	nil	
indirect with intact deep ring	0	0	0	9	9
indriect with dilated deep ring	2	1	2	20	25
3	1	0	0	11	12
4	0	2	0	2	4
Total	3	3	2	42	50

X^2= 0.031, P=0.005

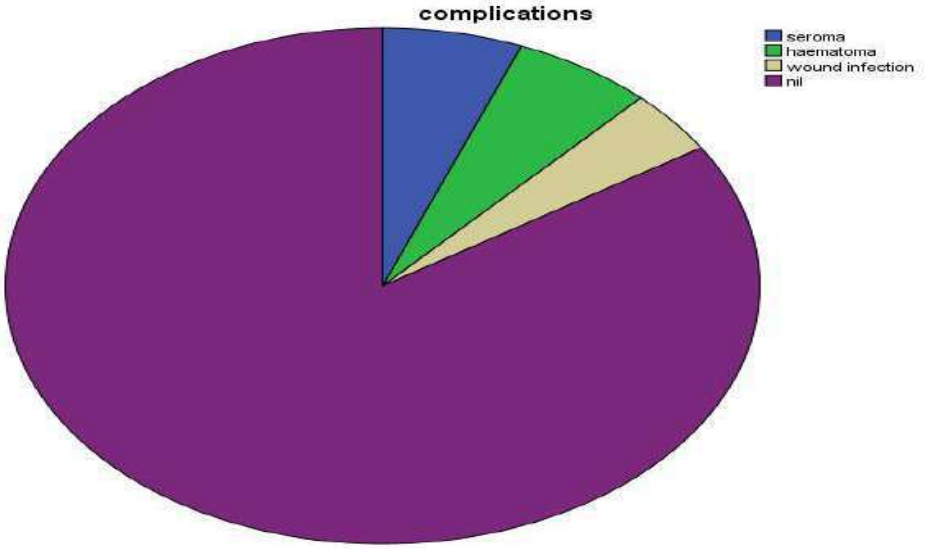

Figure 3: Showing the absence of recurrence during the study

Table 10: Showing relationship between hernia duration and anaesthesia used

ANAESTHESIA	surgery_duration			Total
	30-45minuts	45-60minutes	60minutes and above	
local	19	2	0	21
spinal	12	13	3	28
general	0	0	1	1
Total	31	15	4	50

X^2=0.000, P=0.005

Table 11: Showing the relationship between surgery type and duration

SURGERY	surgery_duration			Total
	30-45minuts	45-60minutes	60minutes and above	
modified bassini repair	20	5	0	25
desarda repair	11	10	4	25
Total	31	15	4	50

X^2=0.016, P=0.005

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Evaluation of Pulmonary Functions in Fertile Females Having Anemia with Homoeopathic Similimum

R.P. Arshidhha, Dr. K.R. Reshmy, Dr. Chandraja CV, Dr. Sisir PR, Dr. Mohan CK & Dr. Sugathan NV

ABSTRACT

Introduction: More than 50% of women world-wide and 90% in India of reproductive age have been reported to be anemic the common cause being iron deficiency[4]. The primary function of respiratory system is the exchange of gases. The circulatory system is an essential link between the atmosphere which containd o2 and the cells of the body which consumes O2 which is primarily done by Hb of RBC. The common measure taken against anemia is supplementation of iron orally or through IV. Researches have shown that the iron supplementation programmes are not effective in India. In this scenario, considering Homoeopathy as a system of treatment has certain advantage on curing anemia. This study was done with the intention to bring out the possible correlation between anemia and altered Pulmonary function in females of reproductive age group and thereby exploring the scope of potentised homoeopathic medicines to cure anemia.

Keywords: anemia, spirometry, forced vital capacity (FVC), forced expiratory volume (FEV).

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Evaluation of Pulmonary Functions in Fertile Females Having Anemia with Homoeopathic Similimum

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ABSTRACT

Introduction: More than 50% of women world-wide and 90% in India of reproductive age have been reported to be anemic the common cause being iron deficiency[4]. The primary function of respiratory system is the exchange of gases. The circulatory system is an essential link between the atmosphere which containd o_2 and the cells of the body which consumes O_2 which is primarily done by Hb of RBC. The common measure taken against anemia is supplementation of iron orally or through IV. Researches have shown that the iron supplementation programmes are not effective in India. In this scenario, considering Homoeopathy as a system of treatment has certain advantage on curing anemia. This study was done with the intention to bring out the possible correlation between anemia and altered Pulmonary function in females of reproductive age group and thereby exploring the scope of potentised homoeopathic medicines to cure anemia.

Methodology: 10 cases from SKHMCH provinces were taken and their Hb level was checked and their pulmonary function was analyzed using spirometry and similimum was prescribed then again post assessment of their Hb level and pulmonary function was done and the results were compared.

Result: According to the study nearly 60% of anemic subjects suffered from restrictive lung diseases, 20% with obstructive lung diseases and 20% had normal ventilator function and after treatment only 10% had mild restriction and 10% with moderate restriction and there was no obstructive lung diseases and the persons with normal ventilator function showed further improved pulmonary capacities. Among the medicines used Pulsatilla showed greater improvement. Thus the co-relation between Anemia and pulmonary function suggests that subjects suffering from Anemia have decreased pulmonary functions and most of them with restrictive lung diseases and homoeopathy does a great role in treating anemia which would improve the pulmonary function and thus enhance the daily activities in Indian women.

Keywords: anemia, spirometry, forced vital capacity (FVC), forced expiratory volume (FEV).

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I. INTRODUCTION

Anemia is a condition in which the number of RBC (or) their oxygen carrying capacity is insufficient to meet the physiological needs, which vary by age, sex, altitude, smoking and pregnancy state. Anemia is classified as mild, moderate and severe based on the level of Hb in blood. According to WHO if any disease whose prevalence is more than 40% is considered as a problem of high magnitude. In India 90% of women of reproductive age group are affected. The common cause being iron deficiency. A regular loss of 2ml of blood per day doubles the iron requirement. During menstruation 35ml of blood is lost.[01]On average, an additional 20mg of iron is lost during menstruation, so pre menopausal women requires about twice as much iron as men. [03]

In Anemic individuals due to lack of Hb there is ineffective O_2 delivery to the exercising muscles. The rate and depth of respiration often are increased. The minute ventilation is increased and FEV_1 is reduced. While explaining the background it is inevitable to say that most of the young girls are anemic. Though it is an extremely common phenomenon it is given least importance. Dietary calcium reduces iron uptake from the same meal, which may precipitate iron deficiency. [05] But the fruits and vegetables containing Vitamin C enhances iron absorption, it may help reduce the risk of anemia among people prone to iron deficiency [33].

The primary function of respiratory system is to exchange O_2 and CO_2. But in anemic individuals due to lack of Hb there is ineffective O_2 delivery to the exercising muscles, with a resultant increase in anaerobic metabolism. [02] Many times respiratory and circulatory symptoms are only noticeable following exertion. When anemia is severe, dypsnoea and awareness of vigorous heart action may be noted even at rest. The rate and depth of respiration often are increased. The minute ventilation is increased, as is the residual air, but the FEV_1 is reduced. The O_2 debt incurred during a standard work load is greater in anemic subjects. In anemic condition, it takes longer to restore heart rate and respiratory minute volume. The recovery period for O_2 uptake was prolonged than CO_2 uptake in exercise as it attributed to the greater work required of the respiratory muscles. [06]

II. OBJECTIVE

Usefulness of homoeopathy in treating anemia with decreased pulmonary function in fertile women.

1) To assess the co-relation between different stages of anemia with Forced Expiratory Volume.
2) To assess the severity of anemia on the basis of Hb concentration and FEV_1 values.

III. MATERIALS AND METHODS

10 female cases between 12-45 years from different OPDs and IPDs of SKHMCH provinces were taken and their Hb level was checked and they were categorized into different stages of anemic subjects and their pulmonary functions were analyzed using spirometry then proper case taking was done and similimum was administered for minimum of 4 weeks then again post assessment of Hb level and pulmonary function was done and the data were compared statistically.

IV. RESULT

Out of 10 cases, 50% had Moderate anemia, 30%had severe anemia and 20% had mild Anemia. Out of them 50% had Moderate airway restriction, 10% had Mild airway restriction, 10% had severe airway obstruction and 10% had Mild airway obstruction. And 20% had Normal ventilator functions.After treatment for minimum of 4 weeks using exact Homoeopathic Similimum among 10 cases, 60% of them had Mild anemia, 20% of them had Moderate anemia and 20% had severe anemia. Out of them 80% had Normal ventilator function, 10% had mild airway restriction and 10% had moderate restriction.

Thus overall, improving the Hb concentration using Homoeopathic Similimum improved the pulmonary functions in fertile females who suffered from anemia which clearly demon strated the effectiveness of Homoeopathic Similimum in improving the pulmonary function by treating anemia.

Table 1: Distribution of case according to haemoglobin concentration before treatment

Pulmonary Function	Before Treatment	After Treatment
Severity ofAnemia	No of Cases	No of Cases
MILD (10.0-11.9)	2	6
MODERATE (7-9.99.9)	5	2
SEVERE (less than 7)	3	2

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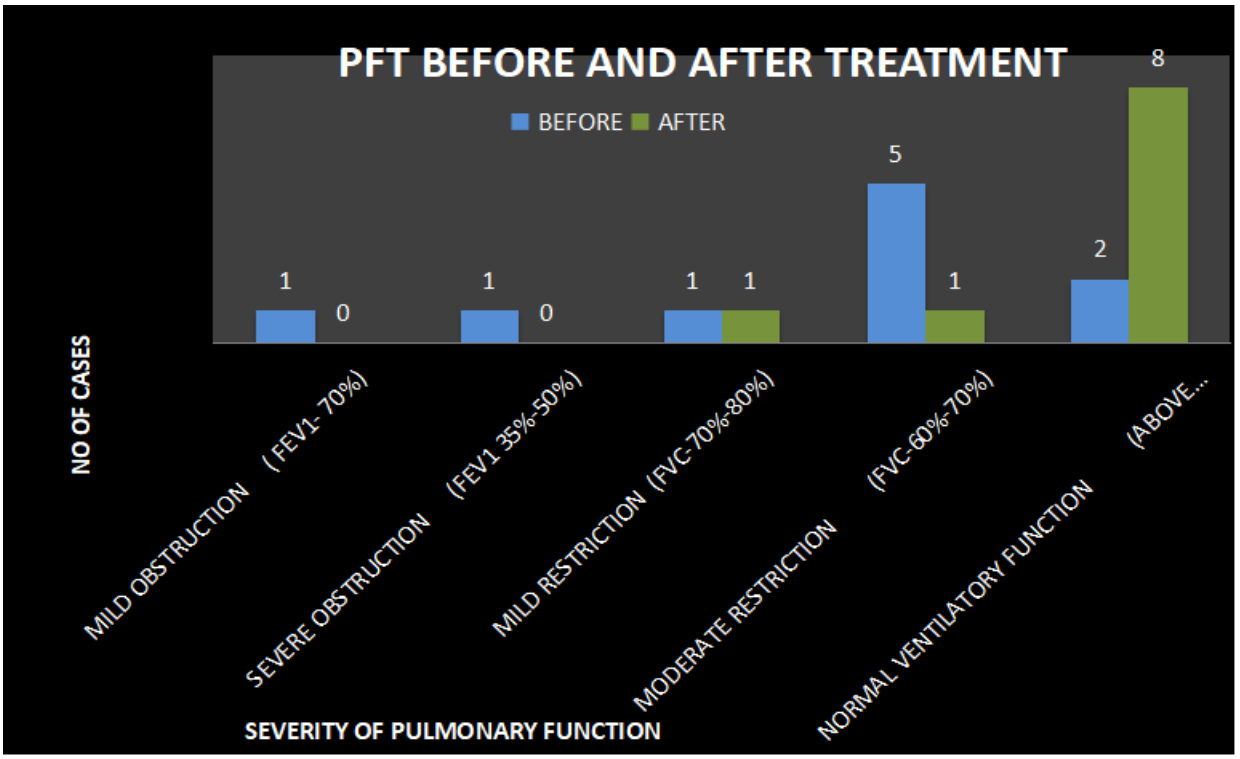
Chart 1: Comparision of pulmonary function before and after treatment



V. DISCUSSION

The study conducted by Emily P.Brigham, Meredith C, et all in US Women suggested that iron status may play a role in lung function in US Women. Similar studies conducted by Sharad Jain and JL Agarwal at Hapur, U.P, India and similar researches suggests that FVC, PEFR, FEV1 were Significantly lowered in anemic group compared to control group. Even in this study the FVC, FEV1 and FEV1 % ratio was very significantly lowered in about 80% of the subjects with no history of cardiac or pulmonary pathology but 20% of the study had Normal ventilatory function. Of them restrictive lung disease was relatively higher compared to Obstructive Lung disease with 60% which is very similar to the work conducted by K Amrutha kumara, T Rama Kranthi, et all at DR.V.R.K Women's Medical College Teaching Hospital and Research Centre, Azinagar, Telungana, India.

The Fundamental principle in which Homoeopathy stands is "Individualization". Recent study conducted in the year 2015 had concluded that the treatment plan for iron deficiency should be made on individual basis which supports our method of treatment. Thus according to symptom similarity and individualization proper similimum was selected for each individual after a brief case taking and proper repertorization and reference with proper material medica. The patients were also advised to include iron rich food in their diet. The Similimums obtained in this study were Pulsatila Nigricans, Sulphur, Calcarea Carbonica, Ignatia and Aurum Metallicum. Of them PULSATILA NIGRICANS was more useful which showed a greater improvement in Hb content which improved by 2g/dl in 3-4 weeks as accordance with the standards fixed. The potency which was used includes 200 and LM potencies.

After regular follow ups, for minimum of a month post assessment of Hb concentration was done and 90% of cases showed marked improvement.

To assess the correlation between Anemia and Pulmonary function, PFT was also done again, 80% of the cases who were interpretated with restrictive or obstructive lung pathologies were having Normal ventilatory function. 10% of the

case who had moderate restriction showed improvement and were diagnosed with mild restriction.10% of case showed no improvement. 2 case who were having normal ventilator function had obtained better and increased values of FVC and FEV1 values comparing to the previous test. There are no adequate literary works that shows improvement of the Pulmonary function in anemic subjects after administration of Homoeopathic remedies according to my knowledge. Thus according to my study the effectiveness of Homoeopathic similimum in improving anemia and thereby enhancing Pulmonary function and the existence of positive relationship between anemia and decreased pulmonary function has been established clearly. But there is no positive relationship between the severity of anemia and their pulmonary function. As before treatment 3 who had severe anemia had their FEV_1/FVC ratio between 80%-90%, 5 who had moderate anemia had their FEV_1/FVC ratio between 50%-80% and 2 who had mild anemia had their FEV_1/FVC ratio between 80%-90%. After treatment 2 who have severe anemia have their FEV1/FVC ratio between 75%-85%, 2 who have moderate anemia have their FEV_1/FVC ratio between 80%- 90%, 6 who have mild anemia have their FEV_1/FVC ratiobetween75%-95%.

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