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Exploring the Causes, Diagnosis, Symptoms, Risk Factors, Treatments and Prevention of Rheumatic Fever

Abdul Razzaq Mughal¹, Muhammad Haroon Sarwar² and Muhammad Sarwar^{3*}

¹Faisalabad Institute of Cardiology, Faisalabad, Punjab, Pakistan

²Faculty of Medicine and Allied Medical Sciences, Isra University, Hyderabad, Sindh, Pakistan

³Pakistan Atomic Energy Commission, Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad, Punjab, Pakistan

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*For Correspondence

Pakistan Atomic Energy Commission, Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad, Punjab, Pakistan.

E-mail: drmsarwar64@yahoo.com

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ABSTRACT

The present article aimed at exploring the diagnosis, signs and symptoms, risk factors treatment and preventing among patients with rheumatic fever. Rheumatic fever is common worldwide and responsible for many cases of damaged heart valves. Acute rheumatic fever primarily affects the heart, joints and central nervous system. This usually happens 2 to 4 weeks after the *Streptococcus* bacterial infection in child's body. Rheumatic heart disease is the common acquired heart disease in children between the ages of 6 and 15, with only 20% of first time attacks occurring in adults. However, age over 19 years and a large family size appeared as the protective factors for rheumatic heart disease. The overcrowding and low level of education of mothers increased the risk of rheumatic heart disease among the rheumatic fever patients. Urban residence, peoples living in brick-built house, having three or more siblings and mothers working out of home, further appeared as the significant risk factors. Primary prevention of acute rheumatic fever is accomplished by proper identification and adequate antibiotic treatment of group A β -hemolytic streptococcal tonsillopharyngitis. Diagnosis of streptococcal pharyngitis is best accomplished by combining clinical judgment with diagnostic test results, and the criterion standard of which is the throat culture. Penicillin (either oral penicillin V or injectable benzathine penicillin) is the treatment of choice, because it is cost-effective, has a narrow spectrum of activity and long-standing proven efficacy, and streptococcal resistant to penicillin has not been documented. For penicillin-allergic individuals, acceptable alternatives include a narrow-spectrum oral cephalosporin, oral clindamycin, or various oral macrolides or azalides. The information provided herein should not be used during any medical emergency or for the diagnosis or treatment of any medical condition oneself. A registered physician should be consulted for diagnosis and treatment of any and all medical conditions. The doctor in charge of a child's care might be able to make more detailed recommendations to prevent the fever.

INTRODUCTION

Fever also known as pyrexia or febrile response, is one of the most common medical signs and is characterized by an elevation of body temperature above the normal range often due to an illness. Having a fever is a sign that something out of the ordinary is going on in the body that a fever causes. Fever usually occurs in response to an infection that occurs with tissue injury or disease, however, other possible causes of fever are drugs, poisons, cancer, heat exposure and injuries or abnormalities to the

brain^[1-3]. Rheumatic fever or alternatively named as acute rheumatic fever is an inflammatory disease that may develop after an infection of a person with group A *Streptococcus* bacteria (such as strep throat or scarlet fever). The disease can affect the heart, joints, skin and brain of human. Rheumatic fever is an inflammatory disease that occurs following a *Streptococcus pyogenes* infection, such as streptococcal pharyngitis and is believed to be caused by antibody cross-reactivity^[4]. Rheumatic heart disease is the most common acquired heart disease in children in many countries of the world, especially in developing countries. The global burden of disease caused by rheumatic fever currently falls disproportionately on children living in the developing world, especially where poverty is widespread. Chronic rheumatic heart disease is characterized by repeated inflammation with fibrinous repair. The cardinal anatomic changes of the heart's valve include leaflet thickening, commissural fusion, and shortening and thickening of the tendinous cords^[5]. It is caused by an autoimmune reaction to Group A β -hemolytic streptococci (GAS) that results in valvular damage. Fibrosis and scarring of valve leaflets, commissures and cusps lead to abnormalities that can result in valve stenosis or regurgitation. The inflammation caused by rheumatic fever, usually during childhood, is referred to as rheumatic valvulitis. About half of patients with acute rheumatic fever develop inflammation involving valvula endothelium^[6].

Globally, the prevalence of rheumatic fever and rheumatic heart disease has declined sharply but, in developing countries, rheumatic fever is still a leading cause of heart disease and consequently resulting death in children and young adults^[7]. In 2005, it has been estimated that over 2.4 million children aged 5-14 years are having rheumatic heart disease globally and 79% of all these cases are from less-developed countries^[8]. In developing areas of the world, acute rheumatic fever and rheumatic heart disease are estimated to affect nearly 20 million peoples and are the leading causes of cardiovascular death during the first 5 decades of life. In contrast, the incidence of acute rheumatic fever has decreased dramatically in most developed countries^[9]. Rheumatic fever has been once a common cause of heart problems in childhood. It remained a serious childhood health problem in many developing countries. But, in advanced states it is much less common due to improved hygiene and routine use of antibiotics for infections. However, when it does strike, it can still have serious consequences for heart health, which is an infection of the respiratory tract. Rheumatic fever is most frequent in children of age 5 to 15 years, but can also affect adults and children younger than 5 years of age. Nevertheless, there are no reliable figures on adults.

Causes of Rheumatic Fever

Rheumatic fever is common worldwide and is responsible for many cases of damaged heart valves. It usually occurs in isolated outbreaks and happens around 14-28 days after strep throat or scarlet fever. It is caused by a combination of bacterial infection and immune system overreaction. It almost always follows a strep throat infection caused by bacteria of the *Streptococcus* family. Children are far more likely to get strep throat than adults. Normally, *Streptococcus* causes a cough and a sore throat, and clears up with antibiotics. In some cases, however, children with strep throat begin complaining of pain in the joints or other unusual symptoms. The disease has an affinity for the joints, the central nervous system (brain and spinal cord) and the heart. In the heart, the disease can affect the inner lining of the heart including the heart valves (endocarditis), the muscle of the heart (myocarditis) or the covering of the heart (pericarditis). In some peoples, the body reacts with a massive immune system reaction to the affected areas. The cells that normally kill invading bacteria become so active that they also attack the affected tissues. This results in the joints as temporary arthritis (inflammation of the joints). In the heart, they can permanently damage heart valves, thus increasing the risk of heart problems later in life. Rheumatic fever can also cause problems with the nervous system that are usually reversible^[10].

Symptoms of Rheumatic Fever

A wide variety of symptoms are associated with rheumatic fever. If a child has any of the symptoms like, sore throat or sore throat with tender and swollen lymph nodes, rash, trouble swallowing, and thick, bloody discharge from nose, a strep assessment is needed. Symptoms usually appear two to four weeks after a child has been diagnosed with strep throat. An individual with the illness could experience a few, some, or most of the common symptoms such as fever; painful/tender joints in the ankles, knees, elbows, and wrists; pain in one joint that moves to another joint; red, hot, swollen joints; small nodules (bumps) under the skin that do not hurt; chest pain; rapid fluttering or pounding chest palpitations; fatigue; nose bleeding; stomach pain; shortness of breath; short attention span; sweating; vomiting; flat, slightly raised, ragged rash; jerky uncontrollable hand, feet, face movements; and outbursts of crying or inappropriate laughter. The symptoms of rheumatic fever depend on whether the heart, joints, or nervous system are affected. Most peoples with rheumatic fever have fever and joint pain. The joint pain (arthritis) usually affects large joints such as the knees, elbows, ankles, or wrists. The joint pain characteristically migrates from one joint to another, so that one or more joints may be swollen, red, and extremely tender. The arthritis is usually reversible.

The succeeding situations require that a person should seek medical advice and or attention, fever that is over 100 °F in new born to 6 weeks-old infants, fever that is 102 °F or higher in babies of 6 weeks to 2 years old, fever that is 103 °F or higher in children of age 2 years or older, and fever that lasts more than three days. Other common symptoms can be a red, raised, lattice-like rash, usually on the chest, back, and abdomen; swollen, extremely painful joints; nodules or small protuberances, over the swollen joints; sometimes, weakness and shortness of breath caused by heart involvement; and sometimes, uncontrolled movements of arms, legs, or facial muscles called chorea. These symptoms often begin one to six weeks after a strep throat infection has appeared. Sometimes, however, peoples with rheumatic fever do not recall having a sore throat. Many peoples who develop rheumatic fever suffer damage to the muscle tissue of the heart, which may include their heart valves, heart muscle, sac

covering the heart, or all three. This may cause no symptoms, but some peoples feel heart palpitations or chest pain. Occasionally, there is heart failure, though few peoples can die during a rheumatic fever episode. In severe cases, the valves have to be replaced with artificial ones. Peoples with damaged valves and those with an artificial heart valve are at increased risk of a heart infection later in life (infectious endocarditis).

The central nervous system may also be affected to produce a symptom known as Sydenham chorea. The chorea is emotional instability, muscle weakness and quick, uncoordinated jerky movements that mainly affects the face, feet and hands. Chorea affects females more frequently and almost never occurs after puberty. The onset of chorea is usually gradual and it often first appears several months after the rheumatic fever has been passed. Occasionally, chorea is the only visible symptom of rheumatic fever. Symptoms of chorea may include; grimacing, muscular weakness, involuntary purposeless movements of the arms and legs, and emotional disturbances (crying and restlessness). Teachers may be the first to notice it and mistake it for clumsiness or restlessness. Rheumatic fever can also cause skin lesions to develop that can be firm and painless, and can be present for one or more weeks, or non-itching rashes (called Erythema marginatum) that usually affect the trunk of the body and appear and disappear within hours. The other known symptom can be heart (cardiac) problems, which may not have symptoms, or may result in shortness of breath and chest pain; redness or warmth; nose bleeding (Epistaxis); skin nodules; skin rash (Crythema marginatum); and skin eruptions on the trunk and upper part of the arms or legs that look ring-shaped or snake-like.

Factors Increasing the Risk of Catching Rheumatic Fever

Certain factors can increase the chances of a child to develop rheumatic fever. These include the family history (certain genes make it more likely to develop rheumatic fever), type of strep throat bacteria present (certain strains are more likely to lead to rheumatic fever than others) and environmental factors (present in developing countries, including poor sanitation, overcrowding and lack of clean water). A greater risk of rheumatic fever is associated with other conditions that may easily result in the rapid transmission or multiple exposures to strep bacteria. Rheumatic fever ends up as rheumatic heart disease and shares almost a similar set of risk factors in the population. Sometimes, only overcrowding and low attainment of education by mothers pose rheumatic heart disease in rheumatic patients.

All cases of rheumatic fever do not end up as rheumatic heart disease. The fact raises the possibility of existence of a subgroup with characteristics that prevent rheumatic fever patients from developing the rheumatic fever and rheumatic heart disease. In general, age over 19 years is found to be protective; however, age of the majority (62.1%) of the rheumatic heart disease cases is over 19 years. Women, urban resident, dwellers in brick-built house, having >2 siblings, offspring of working mothers, illiterate mothers, and those who do not brush after taking meals are more likely to develop rheumatic fever. However, more than 5 members in a family showed a reduced risk of rheumatic fever. Rheumatic heart disease shares almost a similar set of factors in general. More than three peoples sharing a room also showed an increased risk of rheumatic heart disease, in addition to the risk factors of rheumatic fever. Multivariate model also assessed the factors that may perpetuate rheumatic heart disease among rheumatic fever patients. Overcrowding and illiteracy posed the risk of rheumatic heart disease in the rheumatic fever patients. The study does not find new factors that might pose an increased risk, rather looked for the documented risk factors and how these operate in the population^[11]. Hence, along with the treatment of rheumatic fever, several other factors should also be kept in mind for the determination of individual's risk. Peoples with rheumatic fever are much more likely to have subsequent episodes and the recurrences may cause further damage to the cardiac valves. Thus, rheumatic heart disease steadily deteriorates in peoples who have repeated attacks of rheumatic fever^[12].

Examination and Tests to Diagnose Rheumatic Fever

The Physician initially will try to get medical record of child, including his or her present symptoms. The Physician will as well try to know whether a child has suffered with a fresh bout of strep throat. After that, a physical inspection will be conducted which includes, watching of joints for inflammation, on the lookout for rash or skin nodules (hard bumps below the skin), listening to heart to check for abnormalities, performing of movement analysis to find out nervous system dysfunction, tests of blood for strep bacteria, measuring the electric waves of the heart, and echocardiography (use of sound waves to take image of the heart). The actual quantity of bacteria in the systems of peoples with rheumatic fever is often so low that the bacteria are undetectable, while doctors rely on a standardized checklist to identify the disease. If a patient has a recent history of streptococcal infection, and at least 2 symptoms from a list of 5 common symptoms; arthritis, chorea, erythema marginatum, nodules under the skin, and carditis, doctor may diagnose patient with rheumatic fever. Doctor may listen to the heart with a stethoscope to help in detecting carditis. The diagnosis can also be made with only one of these common symptoms if other abnormalities are present at the same time. These include: sore joints, fever, rheumatic fever in the past, a specific abnormality on electrocardiogram (ECG; prolonged PR interval), or specific abnormalities on blood testing (elevated C-reactive protein or sedimentation rate).

Certain tests can also support the diagnosis by detecting antibodies that the body produces against the *Streptococcus* bacteria, or by detecting the bacteria itself. Modified Jones criteria have been periodically revised by the American Heart Association in collaboration with other groups^[13]. According to revised Jones criteria, the diagnosis of rheumatic fever can be made when two of the major criteria, or one major criterion plus two minor criteria, are present along with evidence of streptococcal infection, and elevated or rising antistreptolysin O titre or DNAase. Exceptions are chorea and indolent carditis, each of which

by itself can indicate rheumatic fever ^[14]. Later on, it has been stated that echocardiographic and Doppler (E & D) studies, despite some reservations about their utility, have identified a massive burden of rheumatic heart disease, which suggests the inadequacy of the Jones criteria ^[15].

Before making any treatment decisions, doctor will want to rule out other conditions that can affect the heart. Tests like the echocardiogram (ultrasound of the heart) can reveal the presence of congenital heart defects that might be confused with rheumatic fever. Doctor or nurse can examine the patient; this will include carefully checking of heart sounds, skin, and joints. The tests may include, blood test for recurrent strep infection [such as an Antistreptolysin O Titer (ASO) Test], complete blood count, electrocardiogram and sedimentation rate (ESR). Several major and minor criteria have been developed to help standardize rheumatic fever diagnosis. Meeting these criteria, as well as having evidence of a recent streptococcal infection, can help to confirm that peoples have rheumatic fever. The major and minor criteria for diagnosis include

MAJOR CRITERIA

Polyarthritits: A brief migrating swelling of the big joints, frequently initially in the legs and then moving about upwards.

Carditis: Swelling of the heart muscle (myocarditis) that can evident as congestive heart failure with shortness of inhalation, pericarditis with a rub, otherwise a new heart murmurs.

Subcutaneous skin nodules: Painless, firm gathering of collagen fibres above bones or tendons. These usually become visible on the backside of the wrist, the outer side of the elbow and the frontage of the knees.

Erythema marginatum: A long-term reddish rash which begins on the trunk or arms as macules, that spreads towards the outside and clears in the centre to shape rings, these go on to spread and join together with other rings, finally taking on a snake-like manifestation. This rash in general spares the face and is prepared worse by way of heat.

Sydenham's chorea (St. Vitus' dance): It is a distinctive chain of quick activities of the face and arms or rapid jerky movements with no intention. This may take place especially delayed in the disease about a minimum of three months from beginning of infection.

MINOR CRITERIA

Occurrence of fever at 38.2-38.9°C (100.8-102.0°F).

1. Arthralgia: Joint pain devoid of swelling (cannot be incorporated if polyarthritits is there as a main sign).
2. Raised erythrocyte sedimentation rate or C reactive protein Leukocytosis.
3. Electrocardiogram (ECG) presenting characteristics of heart block, like a long-lasting PR interval (cannot be incorporated if carditis is there as a most important sign).
4. High ESR.
5. Previous episode of rheumatic fever or inactive heart disease.

OTHER SIGNS AND SYMPTOMS

1. Having an abdominal pain.
2. Having an evidence of nose bleeding.
3. Preceding streptococcal infection: recent scarlet fever raised antistreptolysin O or other streptococcal antibody titre, or positive throat culture.

A person is likely be diagnosed with rheumatic fever if he meets two major criteria, or one major and two minor criteria, and has signs of having a previous strep infection.

Possible Complications of Rheumatic Fever

Once the symptoms of rheumatic fever develop, these can last for months. Rheumatic fever may cause long-lasting complications under many conditions. Among the very frequent complications, one most important is rheumatic heart disease. Other heart conditions include:-

Valve stenosis: a narrowing of the valve of heart.

Valve regurgitation: a leakage within the valve which causes the blood to flow in the wrong side.

Heart muscle damage: swelling may weaken the heart's muscle that can lessen the ability of heart to pump blood properly.

Atrial fibrillation: occurrence of irregular heart beat (especially in the upper chambers).

Heart failure: heart may no longer pump blood to the entire parts of the body.

Epidemiology of Rheumatic Fever

The incidence and prevalence of acute rheumatic fever or rheumatic heart disease have been decreasing in developed nations, and these continue to be major causes of morbidity and mortality among young peoples in developing nations. It is estimated that there are over 15 million cases of rheumatic heart disease worldwide, with 282,000 new cases and 233,000 deaths annually ^[16]. More recent data using echocardiography to screen for rheumatic heart disease in developing nations, have led to a marked increase in the recognized prevalence in these regions ^[17,18]. The literature review data on the incidence and prevalence of acute rheumatic fever revealed the decreasing in all World Health Organization regions except for the Americas where it appears to be increasing slightly, and the Western Pacific where it appears to be steadily increasing. The reported prevalence of rheumatic heart disease is increasing in all regions except for Europe, where it appears to be decreasing. However, these data make clear that both these health issues still exist in significant numbers around the world, which is a disappointment from a public health standpoint ^[19].

Effective Treatment of Rheumatic Fever

There is currently no cure for rheumatic fever, but it is possible to make a child to feel as comfortable as possible while reducing the risk of serious complications. If a child develops rheumatic fever, he will be referred to a pediatrician by general Practitioner, or he may also be referred to a doctor with previous experience of treating this condition so a treatment plan can be drawn up. This may involve visiting a hospital or specialist clinic in one of the larger cities in the state. Most peoples with rheumatic fever are well enough to be treated at home, but they may need to make regular hospital visits so the state of their heart can be monitored. The most effective way to make sure that a child does not contract rheumatic fever is to make sure that all strep bacteria are killed. In addition, doctors can treat the symptoms and control resulting inflammation. This can include any of the followings:

Antibiotics

Doctors can prescribe antibiotics and on occasion can prescribe a long-term (up to five-year) treatment to prevent reoccurrence. It is vital to get rid of any streptococcus bacteria left over within the body of child from the infection. It is too imperative to prevent any streptococcus bacteria from settling in the throat and causing another infection that is picked up after the initial infection (called prophylaxis measure). This is important because further infections of throat can lead to another episode of rheumatic fever. The repeated episodes of rheumatic fever can cause the risk of a regular injury to the heart. Injections of antibiotics (intravenous antibiotics) applying after every two to three weeks over the course of many years are normally suggested. The present recommendations include:-

1. When a child is not suffering from any swelling of the heart, the course should be continued for five years or until child is of 18 years (whatever is longer).
2. When a child is suffering from swelling of the heart but his heart has been recovered, the course can be lasted for 10 years or until child is of 25 years (whatever is longer).
3. When a child has swelling of the heart that has caused a significant and persistent heart disease, the course can be lasted until he is at least of 40-45 years (some Physicians have suggested that the course should be lasted for the rest of the life of infested child).

Anti-inflammatory Treatment

Anti-inflammatory healing includes pain relief drugs which are furthermore anti-inflammatory, such as aspirin or naproxen. Doctors may as well recommend a corticosteroid (a group of medicine which reduces inflammation). Anti-inflammatory drugs may be utilized to alleviate signs of joint pain, swelling (arthritis) and in strict cases can decrease inflammation of the heart. Non-steroidal anti-inflammatory medicines that contain painkillers for example ibuprofen are normally employed to alleviate arthritis. The usage of aspirin is not typically suggested in children below the period of 16 years as there is an extremely little hazard of causing Reye's syndrome- a potentially lethal situation that can cause liver and brain spoilage. Nonetheless, exclusion is typically made for rheumatic fever, as the majority of children are only needed to take a low-dose of aspirin for one to two weeks, and it has been confirmed tremendously thriving in mitigating warning signs. The majority of health professionals think about the benefits of aspirin in the healing of rheumatic fever to compensate the hazards. When the consequences of electrocardiogram demonstrate swelling of the heart, a type of steroid medicine known as prednisolone can generally be suggested. Prednisolone is typically given in tablet form for a course of two to six weeks. The side effects of prednisolone comprise headache, dizziness, sleeping problems and weight gain. These side effects may possibly pass just at once the course is completed.

Anti-convulsing Medications

Doctors might prescribe an anticonvulsant if involuntary movements become too severe.

Bed Rest

Plenty of bed rest is recommended for patient, as this will help to reduce the strain on the heart and help ease some of the symptoms, such as shortness of breath and constantly feeling tired. Doctors will also recommend bed rest and restricted activities until the major symptoms like pain and inflammation have passed. A child might be placed on strict bed rest for a few weeks to a few months if the fever has caused heart problems. As children begin to recover, they can slowly increase their activity levels.

The administration of acute rheumatic fever is geared toward the lessening of swelling with anti-inflammatory medicines, for example aspirin or corticosteroids. Persons with activist cultures for strep throat should also be cared for with antibiotics. Aspirin is the medicine of preference and should be specified at high doses of 100 mg/ kg/ day. One should also observe for side effects like gastritis and salicylate poisoning. In children and teenagers, the usage of aspirin and aspirin-comprising products can be linked with Reye's syndrome antibiotics, with a severe and potentially lethal situation. The hazards, advantages and substitute cures must constantly be judged when managing aspirin and aspirin-containing products in children and teenagers. Ibuprofen for ache and anxiety, and corticosteroids for modest to harsh inflammatory reactions evident by rheumatic fever ought to be judged in children and teenagers. Steroids are held in reserve for cases where there is confirmation of association of heart with problem. The usage of steroids can check more scarring of tissue and might put off growth of sequelae such as mitral stenosis. Monthly injections of penicillin have to be specified for a time of five years to patients having one attack of rheumatic fever. When there is confirmation of carditis, the period of treatment might be up to 40 years. An additional imperative foundation in curing rheumatic fever comprises the repeated utilize of low-dose antibiotics (for instance penicillin, sulfadiazine or erythromycin) to avoid reappearance of disease.

Vaccine

At present, no vaccines are existing to guard against *S. pyogenes* illness, even though there has been investigation into the development of vaccine. Complications in preparing a vaccine include the broad diversity of strains of *S. pyogenes* present in the atmosphere and the huge quantity of time and peoples that will be required for suitable experiments for safety and effectiveness of the vaccine.

Infection

Patients with positive cultures for *S. pyogenes* must have to be cared for with penicillin on condition that allergic reaction is not there. However, this cure will not modify the course of the severe disease. The largely suitable cure assured in the Oxford Handbook of Clinical Medicine for rheumatic fever is benzathine benzyl penicillin.

Inflammation

Patients by having important signs of disease can need corticosteroids and salicylates that are valuable for ache.

Heart Failure

A number of patients build up noteworthy carditis that is noticeable as congestive heart failure. This necessitates the customary cure for heart failure like ACE inhibitors, diuretics, beta blockers, and digoxin. Contrasting to normal heart failure, rheumatic heart failure responds fine to corticosteroids.

Treating and Preventing of Rheumatic Fever

Avoidance of both preliminary and intermittent attacks of rheumatic fever is based upon the control of group A β -hemolytic streptococcal (GAS) tonsillopharyngitis (strep throat). Avoidance of initial attacks (primary prevention) is skilled by appropriate detection and satisfactory antibiotic cure of streptococcal infections. The person who has a hit of rheumatic fever is at elevated danger of emergent recurrences following subsequent GAS pharyngitis and desires constant antimicrobial prophylaxis for years to avoid such recurrences (secondary prevention). The superlative method to check rheumatic fever is to have strep throat treated with penicillin or other antibiotics. Penicillin (either oral penicillin V or injectable benzathine penicillin) is the cure of preference, since it is cost-effective, has a narrow spectrum of activity and long-standing proven efficacy, and GAS resistant to penicillin has not been recognized. For penicillin-allergic persons, satisfactory substitutes include a narrow-spectrum oral cephalosporin, oral clindamycin, or various oral macrolides or azalides. The suggested time of prophylaxis is based upon the number of earlier attacks; the time elapsed since the last attack, the hazard of coverage to GAS infections, the age of the patient, and the existence or dearth of cardiac association. Penicillin is yet again the means of selection for secondary prophylaxis, although sulfadiazine or a macrolide or azalide is satisfactory substitutes to penicillin-allergic persons.

The strep infection ought to be established with a throat swab prior to a treatment is on track, and rheumatic fever may be prohibited on condition that treatment is ongoing in 5 or 6 days. For that reason, there is time to carefully await the swab result. The most important basis to treat strep throat is to avoid rheumatic fever. Pain killers, hot drinks, and gargling would too facilitate the sore throat, however only the antibiotics can destroy the bacteria and formulate the signs to fade away. Even though bacteria are responsible to activate rheumatic fever, antibiotics can perform slight to assist just the once somebody have rheumatic fever, and treatments then seek at alleviating of signs. The usual treatment for joint swelling and ache in rheumatic fever is the usage

of nonsteroidal anti-inflammatory drugs. Because peoples who have rheumatic fever are more prone to further attacks if they get another strep infection, they may be given monthly intramuscular penicillin or every day penicillin treatment by oral cavity, possibly for life. If their heart has been injured by rheumatic fever, they are too given a diverse antibiotic when they experience any dental or surgical dealings to decrease the hazard of bacterial heart valve infection (endocarditis). There is no treatment that can formulate chorea to set out further rapidly, though the children with chorea are frequently given antibiotics to avoid endocarditis. Providentially, the signs of chorea frequently fade away in a few months, though from time to time they can get a year or more to be off. The rash and the nodules generally clear up on their own. When a child is diagnosed with acute rheumatic fever, he can be treated with antibiotics. Anti-inflammatory medications such as aspirin or corticosteroids reduce inflammation to help manage acute rheumatic fever. One may have to take low doses of antibiotics (such as penicillin, sulfadiazine, or erythromycin) over the long term to prevent strep throat from returning.

Sydenham Chorea

When a child is undergoing episodes of Sydenham chorea (uncontrollable physical jerking and emotional outbursts), taking him into calm and quiet environment, such as a darkened bedroom, can be helpful to make the signs of disease minimum. If these episodes are very intensive, suitable drugs may be suggested. Medications basically prepared to heal epilepsy, for example, carbamazepine and valproic acid, are typically efficacious in curing Sydenham chorea. If the dose of these drugs is much enhanced, these medications can present side effects alike to being drunk, including dizziness, double vision and vomiting. If a child shows any of such signs, consultation to the Physician dealing with the treatment of disease is imperative so that the dosage recommended can be revised.

Outlook (Prognosis)

If rheumatic fever returns, family doctor may recommend taking of low-dose antibiotics continually, especially during the first 3-5 years after the first episode of the disease. Heart complications may be severe, particularly if the heart valves are involved.

CONCLUSION

A health care provider can be called if a child develops symptoms of rheumatic fever because several other conditions have similar symptoms, and patient will need careful medical evaluation. Rheumatic heart disease is a chronic heart condition caused by rheumatic fever that can be prevented and controlled. Rheumatic fever is caused by a preceding group A streptococcal (strep) infection. Treating strep throat with antibiotics can prevent rheumatic fever. Moreover, regular antibiotics (usually monthly injections) can prevent patients with rheumatic fever from contracting further strep infections and causing progression of valve damage. The most important way to prevent rheumatic fever is by getting quick treatment for strep throat and scarlet fever. This can be achieved by; using anti-inflammatory medications to relieve symptoms, using antibiotics to clear out any remaining streptococcus bacteria in child's body, and taking a plenty of bed rest. The best way to prevent rheumatic fever is to make sure that child has completed all prescribed doses of medication. In addition, pardons might schedule a follow-up visit to ensure that child is free from the strep bacteria antibodies.

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