

FEVER



FEVER

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Greetings from KLEHMC...

Dear Readers,

It gives me immense pleasure to place this second edition of **"KLE HOMOEOPATHIC CHRONICLE- A theme based scientific Journal"** at your hands.

The theme for this issue is **"Fever"**. In this edition the details of fever, their causes, types and epidemiology has been elaborately explained and a special emphasis has been given to understand the individualized approach in diagnosis and treating the fever Homeopathically.

I on behalf of entire editorial board express my sincere gratitude to all the Departmental faculties for their invaluable inputs for this edition.

I express my sincere gratitude towards Dr. M. A. Udachankar, Director Administration KLE HMC for his constant support & guidance through out the journey of the edition.

I thank Dr. Swaroopa Patil, In-charge Principal KLE HMC for her support at every step.

Have a great reading ahead.....

Dr. Govind Sulkar
Managing Editor
Magazine and Literary Co-ordinator



FEVER

What do you need to know.....?

A fever is a temporary rise in body temperature. It is one part of an overall response from the body's immune system. A fever is not an illness by itself. Rather it is a symptom indicating that something is not right within the body. A fever does not tell you what is causing it or even that a disease is present.

A fever what does it mean?

A fever or pyrexia is elevation of an individual body temperature above a set point regulated by the body's thermoregulatory center in the Hypothalamus. As the body temperature rises one feels he/she has chills. In fact your immune system is trying to remove the cause of the illness by a response of fever. Normally fever resolves on its own within a week or 10 days' time at the most.

Fever – What does it mean for Homoeopathy?

As a principle and concept of disease in Homoeopathy. It is an outward reflection of internal derangement of "Vital force" which underlines the expression of any external symptoms of internal diseases and fever is the best example of the same.

Focus on common queries arising thereon

- What are the warning signals of fevers to be kept in mind.
- When is it must to consult a physician urgently.
- Do we have to treat fever alone or the cause ?
- No, it is one part of an overall response from the body's immune system and finding out of cause is the first priority and then treat accordingly.

PAIN & FEVER are boon to Humankind they both give signals that there is something not ok internally and which needs to be attended.

- Any condition which is painless is dangerous
- Any condition likewise without fever is also a bad sign

Hence this issue addresses all these and clarifies

Dear readers with a deep sense of pride, We place this issue of "**KLE HOMOEOPATHIC CHRONICLE**" at your hands with a theme of "**FEVER**" which includes all the aspects of fever.

Our Journey towards excellence continuous.....

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PHYSIOLOGY OF FEVER

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INTRODUCTION

Fever means deviation of body temperature above the set point. Fever itself is not an illness. But it is an important sign of something being wrong in the body. It is the one of the body's response to disease. Fever plays an important role in helping the body fight the diseases and infections. (1)

Normal body temperature in human is 37°C (98.6°F), when measured by placing the clinical thermometer in the mouth (oral temperature). It varies between 35.8°C and 37.3°C (96.4°F and 99.1°F).

Body temperature can be measured by placing the clinical thermometer in different parts of the body such as:

1. Mouth (oral temperature)
2. Axilla (axillary temperature)
3. Rectum (rectal temperature)
4. Over the skin (surface temperature). (1)

MECHANISM

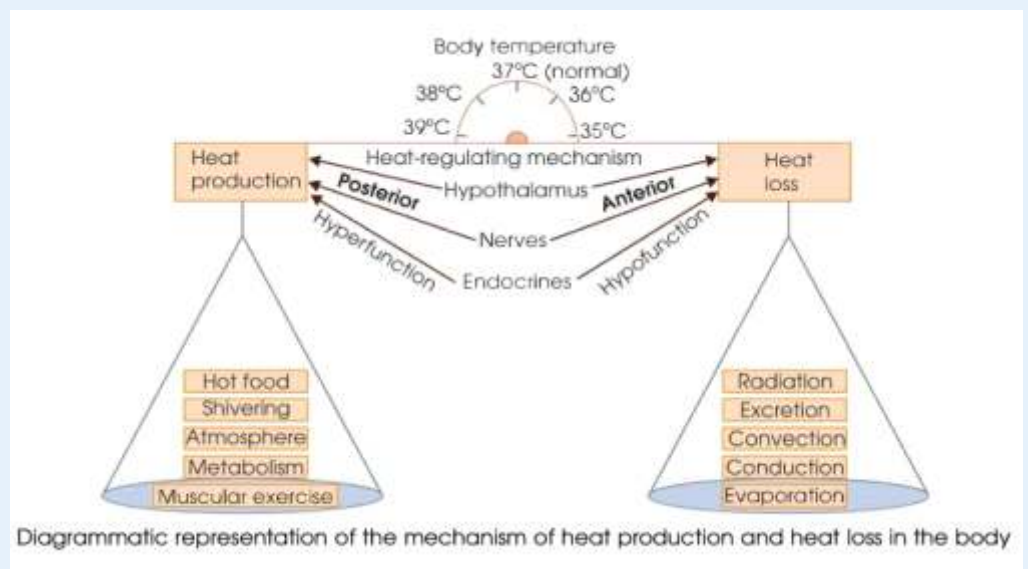
Body temperature rises due to derangement of the heat-regulating mechanism. Toxins (pyrogens) act on WBC and produce endogenous pyrogen. This acts directly on the anterior hypothalamus and the body temperature is elevated. Fever occurs due to any of the causes such as infections (e.g. pneumonia, typhoid fever, etc.), injury to nervous centres, dehydration, tissue destruction, administration of some drugs, etc. In some fever, e.g. malaria, shivering or rigor occurs. (2)

REGULATION OF BODY TEMPERATURE

Body temperature is regulated by hypothalamus, which sets the normal range of body temperature. The set point under normal physiological conditions is 37°C .

Hypothalamus has two centres which regulate the body temperature:

1. Heat loss centre - preoptic nucleus of anterior hypothalamus.
2. Heat gain centre - posterior hypothalamic nucleus



VARIATIONS OF BODY TEMPERATURE

The variation in the core body temperature results from normal physiological processes throughout the human body, including metabolic changes, sleep/wake cycles, hormone variability, and changing activity levels. However, in the case of a fever, the increase in the core body temperature is often greater than 0.5 C and is attributed to a fever-inducing substance (pyrogen). (3)

Physiological Responses due to Pyrexia (Fever)

1. Metabolism increases.
2. Blood pressure, pulse rate and cardiac output increase. Rate of respiration increases.
3. There occurs negative nitrogen balance.
4. There occurs dehydration and fall of plasma chloride level.

CAUSES OF FEVER

1. Infection: Certain substances (pyrogens) released from bacteria or parasites affect the heat regulating system in hypothalamus, resulting in the production of excess heat and fever.
2. Hyperthyroidism: Increased basal metabolic rate during hyperthyroidism causes fever
3. Brain lesions: When lesion involves temperature regulating centers, fever occurs.
4. Diabetes insipidus: In this condition, fever occurs without any apparent cause.

The Most Common Causes of Fever in the Clinical Setting

- Sepsis accounts for up to 74% of fever in hospitalized patients.
- Malignancy, tissue ischemia, and drug reactions account for most of the remainder of the fevers seen in the hospitalized setting.
- Rare causes of fever include neurogenic fever and fevers associated with endocrinopathy. (3)

PATHOPHYSIOLOGY

- Fever occurs when either endogenous or exogenous pyrogens cause an elevation in the body's thermoregulatory set-point. In hyperthermia, the set-point is unaltered, and the body temperature becomes elevated in an uncontrolled fashion due to exogenous heat exposure or endogenous heat production.
- Hyperpyrexia is the term for exceptionally high fever (greater than 41 C), which can occur in patients with severe infections. Hyperpyrexia may also be seen in patients with CNS hemorrhages and is associated with a poor outcome. Elevated brain temperature may lead to increased intracranial pressure, ischemic brain injury, exacerbation of cerebral edema, and death.
- Observation of a pattern of fever can be helpful in certain conditions. For example, a fever that occurs every 48 to 72 hours occurs in certain types of malaria, and a fever that occurs predominately in the evening is typical of tuberculosis.
- The everyday highs and lows of typical temperatures are emphasized in many fevers. However, these variations might be turned around in typhoid fever and disseminated tuberculosis. Temperature-pulse dissociation occurs in typhoid fever, brucellosis, leptospirosis, some medication-prompted fevers, and factitious fever. In healthy individuals, the temperature-pulse relationship is directly proportional, with an expansion in the pulse of 4.4 beats/minute for each 1 degree C (2.44 beats/minute for each 1 degree F) increase in core temperature.
- During infections, fever may not be observed in babies, older adults, patients with chronic kidney disease, or patients taking corticosteroids; instead, hypothermia may be present. (3)

FEVER

SIGNS AND SYMPTOMS

Signs and symptoms depend upon the cause of fever:

1. Headache
2. Sweating
3. Shivering
4. Muscle pain
5. Dehydration
6. Loss of appetite
7. General weakness.

Hyperpyrexia may result in:

1. Confusion
2. Hallucinations
3. Irritability
4. Convulsions. (2)

Knowing how the body reacts to the presence of pathogens allows healthcare professionals to make informed decisions about what action to take in caring for fever. Careful monitoring based on risk of serious illness is recommended in new guidelines on the management of feverish illness in young children provide (National Institute of Health and Clinical Excellence (NICE 2007), which also provide an opportunity for standardising fever management. (4)

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PATHOLOGY OF FEVER

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Fever is an ancient term, but in the last century, after the introduction of the clinical thermometer, it came to mean a raised body temperature, the sense in which we use it now. Earlier, the term was used to embrace all the features of a disease. Vestiges of this old usage still persist. For example, we speak of typhoid fever, using the term to describe the whole disease without particular emphasis on the raised temperature, which is one of its features. Pyrexia, from the Greek for feverish, is a synonym for fever in its modern sense.

ETIOLOGY OF FEVER

Most serious diseases and serious injuries cause fever. Infections of all kinds-bacterial, viral, fungal, or parasitic- tend to cause fever of a greater or lesser degree. Indeed, fever is one of the most characteristic signs of infection. Who has not been put to bed by the fever of a cold?

Infarction causes fever, if it is extensive. Severe haemorrhage and major trauma do so. Other causes are inflammatory diseases such as rheumatic fever, ulcerative colitis, or gout, and immunologic reactions such as polyarthritis nodosa or serum sickness. Patients with Hodgkin's disease, other kinds of lymphoma, or leukaemia often have fever. Solid tumours can cause fever, especially when there are metastases in the abdomen. Common drugs, such as sulphonamides, thiouracil, barbiturates, and laxatives containing phenolphthalein, at times cause fever. Occasionally, a patient has an increased temperature intermittently or continuously without any other sign of disease, perhaps because of some fault in temperature regulation, a condition called habitual hyperthermia. The body temperature rises slightly, if the metabolic rate is increased, as in thyrotoxicosis or vigorous exercise. Heat stroke and malignant hyperthermia cause sudden and dangerous pyrexia. Injury to the brain stem sometimes causes fever.

MECHANISMS OF FEVER

Fever is usually caused by pyrogens that stimulate the heat center in the brain. The term "pyrogen" comes from the Greek words for pyro-, which means fire, and -gen, which means to be born. In the body, temperature is regulated by the hypothalamus, which acts as a thermostat. The pyrogen initiates the release of prostaglandin E₂ (PGE₂), which stimulates the hypothalamus to activate various systemic effects and to reset the temperature of the body. In a scenario where the temperature set point has been raised to a higher level, the body either conserves heat by causing vasoconstriction or generates more heat by shivering. Subsequently, when the pyrogens stop acting, the reverse phenomenon occurs; there is vasodilatation and sweating, with end of shivering. Only in a few conditions, such as trauma to the brain stem, heat stroke, and malignant hyperthermia, is the mechanism different.

Pyrogens

Bacteria, viruses, and other organisms produce substances called exogenous pyrogens, which stimulate macrophages to secrete an endogenous pyrogen. Drugs, immune reactions, tumors, inflammatory diseases, infarcts, and most other conditions causing fever act similarly forming an exogenous pyrogen that stimulates macrophages.

Exogenous Pyrogens

The most important prototype of exogenous pyrogen is lipopolysaccharide (LPS), a component of the bacterial wall that binds to the lipopolysaccharide-binding protein (LBP). The LBP-LPS complex adheres to the CD14 receptor of a macrophage in the near-vicinity and initiates the release of various endogenous cytokines. The action of the bacterial pyrogens is temporary. The macrophages become tolerant to them and cease to respond. Exogenous pyrogens cause fever only after some delay. The endogenous pyrogen is not stored in macrophages and takes from one to several hours to synthesize. The exogenous pyrogens are thermostable. If a bacterial pyrogen contaminates sterile intravenous fluid or the apparatus used for intravenous infusions, it can cause fever, even if the fluid and the apparatus are autoclaved.

Endogenous pyrogens

All endogenous pyrogens are cytokines that constitute a part of the innate immune system. These may be either major endogenous pyrogens, such as interleukin-1 (IL-1) (α and β) and IL-6, or minor ones, such as IL-8, tumor necrosis factor- α (TNF- α), macrophage inflammatory protein- β , and interferons (α , β , γ). The endogenous pyrogen formed by macrophages is IL-1, a polypeptide, or a group of closely related polypeptides, with a molecular weight of 15,000. This mediates the release of TNF- α . These cytokines are released into the circulation that reach the brain through the blood-brain barrier and bind to the endothelial receptors on vascular walls, in order to activate the arachidonic acid pathway. Probably because of increased synthesis of the prostaglandins E, especially prostaglandin E₁, the synthesis of cyclic adenosine monophosphate increases in the neurons of the heat center, and the body's thermostat is set to a higher level.

Aspirin and other nonsteroidal antipyretic drugs reduce fever by impairing the synthesis of the prostaglandins. Adrenocortical steroids reduce fever both by decreasing the synthesis of prostaglandins and by reducing the production of IL-1.

In addition to causing fever, IL-1 causes many other general responses to injury. It activates the helper T cells, causing increased proliferation of both T and B cells, with increased production of antibodies. It mobilizes neutrophils from the bone marrow and activates them. It augments the production of C-reactive protein and other acute-phase proteins in the liver. It reduces the concentrations of iron and zinc in the plasma. It stimulates fibrocytes to secrete collagen. It mobilizes amino acids from muscle by a mechanism involving cyclooxygenase and prostaglandin E₁. It acts on neurons in the brain to cause slow-wave sleep.

OTHER MECHANISMS

Heat stroke is caused when heat and humidity are so extreme that the body can no longer cool itself. Sweating, which is a major mechanism for losing heat, usually stops. The body's temperature rises abruptly, to more than 41°C and sometimes to as high as 44°C. The cause of the inability to maintain cooling is unknown.

Malignant hyperthermia is the name given to a group of inherited conditions in which halothane and other inhalational anesthetics, succinylcholine, and other muscle relaxants release calcium from the sarcoplasmic reticulum of striated muscle fibers, initiating a number of reactions, including the activation of myosin adenosine triphosphatase, which converts adenosine triphosphate to adenosine diphosphate, creating heat in such quantity that the body temperature rises to as much as 42°C.

The fever caused by trauma to the midbrain results from direct injury to the heat center. Epinephrine, norepinephrine, serotonin, and prostaglandin E cause fever, if injected into the heat center.

CLINICAL PRESENTATION

Clinically, fever has three stages. They are well shown in malaria, but can be recognized in common illnesses.

1. Cold Stage:

The first is the cold stage. As the temperature begins to rise, the body conserves heat. The patient feels cold. Cutaneous vasoconstriction reduces the loss of heat. The skin is dry. It may feel hot, but because of the vasoconstriction it is cooler than the interior of the body. The patient notices every draft. Often shivering or chills increase the production of heat. The teeth chatter. The metabolic rate rises. The patient piles on bedclothes and hot water bottles, further increasing the production of heat.

2. Hot Stage:

After cold stage comes the hot stage, the fastigium, from the Latin for gable, the peak of the fever. The heat center has been set to a new level, and the temperature becomes more or less constant, though at a higher level and with greater diurnal variation than what is normal. A fever usually falls in the morning and rises in the evening. The increased metabolic rate provides the increased heat. Shivering stops. Often cutaneous vasodilatation develops, to allow loss of excess heat, though sweating is uncommon. The patient feels warm. The soothing hand notes the fevered brow.

3. Stage of Resolution:

Finally comes the stage of resolution. The heat center is reset, and the excess of heat is lost mainly from the skin. The patient feels hot and throws off the bed covers. Cutaneous vasodilatation is marked, and sweating is profuse. If the fall in temperature is sudden, it is called acrisis, from the Greek for decision. If it is more gradual, it is called lysis, from the Greek for loosening.

EFFECTS

Apart from boosting the immune mechanism in various diseases, recent studies have supported the notion that pyrexia helps in enhancing the mobility of leukocytes and their phagocytic capability, reduces the effects of endotoxins, and increases proliferation of T cells during an immunological response. However, too high fever is dangerous. If the temperature exceeds 40°C, confusion, disorientation, and, especially in children, convulsions can occur. If the temperature exceeds 41°C, serious damage to the brain is likely.



EPIDEMIOLOGY OF FEVER

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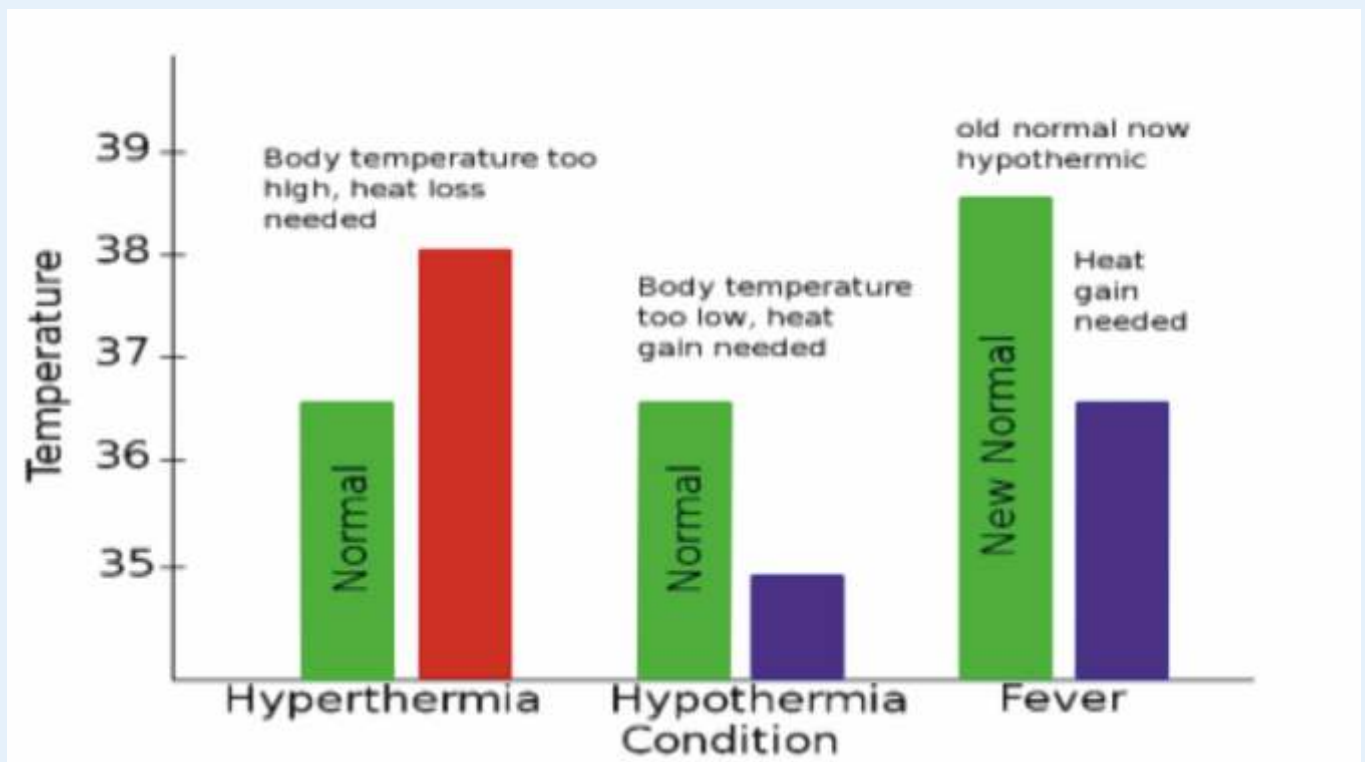
Overview

A fever is a temporary rise in body temperature. It's one part of an overall response from the body's immune system. A fever is usually caused by an infection.(1)

For most children and adults, a fever may be uncomfortable. But it usually isn't a cause for concern. For infants, however, even a low fever may mean there's a serious infection.(2)

Fevers generally go away within a few days. A number of over the counter medications lower a fever. But you don't necessarily need to treat a fever if it's not causing discomfort.

A child has a fever when the temperature is at or above one of these levels: 100.4°F (38°C) measured in the bottom (rectally) 99.5°F (37.5°C) measured in the mouth (orally)



Common Types of Fever Indians Suffer From

1. Acute Fever

Acute fever is a sudden and short-term increase in body temperature, usually defined as a temperature greater than 100.4°F (38°C). This type of fever is often a response to an infection or other underlying medical condition. It is a common symptom of many illnesses, such as the flu, a cold, or pneumonia. Acute fevers generally develop quickly and can last anywhere from a few days to a few weeks. In most cases, an acute fever is a sign that the body is fighting an infection or illness, but in some cases, it can indicate a more serious underlying health condition. Therefore, it is essential to seek medical attention if an acute fever persists, is accompanied by other concerning symptoms, or is very high.

2. Sub acute Fever

Subacute fever refers to a low-grade, persistent increase in body temperature that lasts longer than an acute fever, typically lasting several weeks to a few months. It is often seen in infections or illnesses that are not severe enough to cause a high, acute fever but persistent enough to cause a low-grade elevation in body temperature. Sub acute fever can also be seen in some autoimmune diseases and certain types of cancer. Therefore, it is important to seek medical attention if a low-grade fever persists or is accompanied by other concerning symptoms.

3. Recurrent Fever

Recurrent fever refers to repeated episodes of fever that occur at regular intervals or with a specific pattern. It is a type of fever that comes and goes and can last anywhere from a few days to several weeks before resolving. Various underlying medical conditions, including infections, autoimmune diseases, and certain cancers, can cause recurrent fever. Some specific examples of conditions that can cause recurrent fever include tuberculosis, Lyme disease, periodic fever, aphthous stomatitis, pharyngitis and adenitis (PFAPA) syndrome. It is important to seek medical attention if a fever recurs to address the underlying cause and prevent potential complications. A thorough evaluation, including laboratory tests and imaging studies, may be necessary to determine the cause of recurrent fever.

4. Chronic Fever

Chronic fever is a persistent elevation in body temperature that lasts for an extended period, often greater than three weeks. It can be a sign of underlying health conditions such as tuberculosis or HIV, autoimmune diseases, or cancers and requires a thorough medical evaluation. Prompt and accurate diagnosis is vital to address the underlying cause and prevent potential complications.

5. Intermittent Fever

Intermittent fever is characterised by periods of normal body temperature alternating with episodes of fever lasting several days or weeks. The cause can range from rickettsial infections, malaria and autoimmune diseases to cancers, and it is essential to seek medical attention for accurate diagnosis and treatment.

6. Remittent Fever

Remittent fever is characterised by fluctuations in body temperature that alternates between periods of elevation and normal levels. The temperature changes can occur over the course of a day or a few days, with the fever returning to normal levels temporarily before rising again. This pattern of temperature changes is distinct from the continuous elevation seen in other types of fevers. Remittent fever is often seen in infections, such as bacterial or parasitic infections, as well as in some autoimmune diseases and certain

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cancers. Therefore, an accurate diagnosis and prompt treatment are important to address the underlying cause and prevent potential complications.

7. Hyperpyrexia

Hyperpyrexia is a medical term to describe a high fever, defined as a body temperature greater than 106°F (41.1°C). It can signify a serious underlying medical condition, such as a severe infection or heat stroke, and requires prompt medical attention. In addition, Hyperpyrexia can be dangerous and lead to dehydration and organ damage.

8. Low-Grade Fever

Low-grade fever refers to a slight increase in body temperature, usually defined as a temperature of 100.4°F (38°C) to 102°F (38.9°C). It is considered a mild elevation in body temperature and a common symptom of many illnesses, such as the flu or a cold. Low-grade fevers are often accompanied by other symptoms, such as a headache, muscle aches, or fatigue, and generally resolve independently within a few days to a week. However, in some cases, a low-grade fever can indicate a more serious underlying health condition, so it is important to seek medical attention if the fever persists.

9. Relapsing Fever

Relapsing fever is a type of fever characterised by recurring episodes of fever, each lasting several days. It is caused by certain species of *Borrelia* bacteria that are transmitted by the bite of infected ticks or lice. Symptoms may also include headache, muscle aches, and a rash. Early diagnosis and treatment with antibiotics are important to prevent potential complications.

10. Septic Fever

Septic fever, also known as sepsis, is a severe bacterial infection that can cause a high fever and a widespread inflammatory response in the body. It can be life-threatening if not treated promptly with antibiotics and supportive care. Symptoms may include high fever, chills, rapid heartbeat, low blood pressure, and confusion. Early recognition and prompt treatment are essential to improve outcomes.

11. Drug-Induced Fever

Drug-induced fever is a type of fever that occurs as a side effect of certain medications. Various medications, including antibiotics, pain medications, and cancer treatments, can cause it. Symptoms may include a sudden increase in body temperature, headache, chills, and muscle aches. Treatment involves discontinuing the medication that caused the fever and may also involve supportive care to manage symptoms.

12. Idiopathic Fever

Idiopathic fever is a medical term used to describe a fever of unknown origin, meaning no apparent cause or underlying medical condition can explain the elevated body temperature. The term idiopathic is used when a thorough evaluation, including laboratory tests and imaging studies, has been performed and no apparent cause can be identified. The condition is usually self-limiting and resolves on its own within a few days to a week. Still, ongoing evaluation and monitoring may be necessary to rule out any underlying health issues. Fever is a symptom of an underlying condition, not a disease. Therefore, an individual's fever type will depend on the underlying cause. Likewise, treatment will vary depending on the cause..(3)

Epidemiology. (2)

Fever is one of the most common medical signs. It is part of about 30% of healthcare visits by children, and occurs in up to 75% of adults who are seriously sick. About 5% of people who go to an emergency room have a fever.

Depending on what's causing a fever, other fever signs and symptoms may include :

- **Sweating**
- **Chills and shivering**
- **Headache**
- **Muscle aches**
- **Loss of appetite**
- **Irritability**
- **Dehydration**
- **General weakness**

Complications

Children between the ages of 6 months and 5 years are at increased risk of a seizure that occurs during a fever (febrile seizure). About a third of the children who have one febrile seizure will have another one, most commonly within the next 12 months.

A febrile seizure may involve loss of consciousness, shaking of limbs on both sides of the body, eyes rolling back or body stiffness. Although alarming for parents, the vast majority of febrile seizures cause no lasting effects.

If a seizure occurs:

Lay your child on the side or stomach on the floor or ground

Remove any sharp objects that are near your child

Loosen tight clothing

Hold your child to prevent injury

Don't place anything in your child's mouth or try to stop the seizure

Call 911 or your local emergency number if a seizure lasts more than five minutes or your child doesn't appear to recover well after the seizure

Get emergency room or urgent care services if it's your child's first febrile seizure.

If your child doesn't need emergency care, see your child's health care provider as soon as possible for further evaluation.(2)

Prevention

You may be able to prevent fevers by reducing exposure to infectious diseases. Here are some tips that can help:

- **Get vaccinated** as recommended for infectious diseases, such as influenza and COVID-19.
- **Follow public health guidelines** for wearing masks and social distancing.
- **Wash your hands often and teach your children to do the same**, especially before eating, after using the toilet, after spending time in a crowd or around someone who's sick, after petting animals, and during travel on public transportation.
- **Show your children how to wash their hands thoroughly**, covering both the front and back of each hand with soap and rinsing completely under running water.

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- **Carry hand sanitizer with** you for times when you don't have access to soap and water.
- **Try to avoid touching your nose, mouth or eyes**, as these are the main ways that viruses and bacteria can enter your body and cause infection.
- **Cover your mouth when you cough and your nose when you sneeze**, and teach your children to do the same. Whenever possible, turn away from others and cough or sneeze into your elbow to avoid passing germs along to them.
- **Avoid sharing cups, water bottles and utensils** with your child or children.(2)

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TYPES OF FEVER & PYREXIA OF UNKNOWN ORIGIN

(Synonyms – Pyrexia, Hyperthermia, Febrile)

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INTRODUCTION

Fever is one of the most common ailments that affects people's health from time to time & is a clinical condition in which body temperature rises above normal levels 98–99 °F (36–37 °C) & is a significant sign of something abnormal happening in the body.¹

In a healthy person, body temperature is regulated between 35.8 to 37.2 °C (96.5 to 99 °F). The temperature is at a lower level in the morning & increases as the day rises. This variation is seen in fevers also.²

Definition

Pyrexia is a condition of raised body temperature (taken in mouth) which is above 37.7 °C. The condition is normally called 'febrile'.²

Pyrexia implies an elevated core body temperature of more than 38.0 °F. Fever is a response to cytokines & acute phase proteins, & occurs in infections & also non-infectious conditions.³

• TYPES OF FEVER

- Continued fever: The temperature remains elevated for most of the time & the variation does not exceed more than 1–1.5 degree.
- Remittent fever: Here the variation is more than the diurnal & it does not touch the normal.
- Intermittent fever: Here the temperature at some time of the day is normal & at other time of the day is higher, it is raised by 1, or 2 or more degrees.
- Compound fever: Boenninghausen has given a this type of fever called 'compound fever', unlike the other fevers where the stages are chill fever sweat that follow each other. He has observed that there is a class of fevers in certain individuals where this regularity of chill, heat, sweat is not maintained. But instead the fevers begin with chill, shivering or sweat, or with dry heat fever.²
- Hyperpyrexia: is a term to describe high fever defined as a body temperature greater than 106 °F (41.1 °C) & indicates severe infection–heat stroke & requires prompt medical attention & can lead to dehydration, organ damage.
- Low grade fever: Refers to slight increase in body temperature of 100.4 °F to 102 °F, (38 °C to 38.9 °C).
It's a common feature of illnesses such as flu, cold with headache, bodyache, fatigues & usually resolving

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on its own within days to week & in some cases can be a indication of serious underlying conditions & needs medical advice if it continues.⁴

- g) Relapsing fever: refers to malaria like illnesses caused by various spirochetes belonging to *Borrelia* species & characterised by recurrent fevers, chills, & malaise. The causative organism & associated vector vary based on the geographic area of exposure.⁵

AETIOLOGY OF PYREXIA

Causes of Pyrexia: There are two main causes of fever

A) Infectious

B) Non infectious

- Fever in infection may be due to a bacterial or endogenous pyrogen from polymorphs or other tissues due to bacteria. Fever may be absent if localised as in small boil or any dormant or inactive infection (TB).
- Fever is present in neoplastic diseases, hypersensitive reactions (drugs).
- In immunological disorders (connective tissues, renal, pancreatic CA, liver, lung can cause high fever). SLE, acute rheumatic fever, RA, systemic sclerosis.
- Fever usually follows injuries, haemorrhages, venous or arterial thrombosis, embolism, infarction tissues.
- Fever may associate severe anemia with 4g per 100ml, hyperthyroidism.
- Fictitious fever created by patient or attendants by manipulating thermometer readings by hot water bottles etc.
- In Homoeopathic parlance the cause of fever paroxysm is due to transitory outburst of latent psora.
- All the fevers tend to a protracted, low, malignant which occur in the psoric or tubercular patient.
- In Psoric disposition response is quick, fever picture is sudden & fast.
- In Sycotic, the response is slow in establishing fever & even diagnostic remedy will be slow, tardy.
- In Psoric & Tubercular, -marked periodicity (Intermittent fevers).
- In Syphilitic -destructive pathology & disturbed immune mechanism including malignancy.
- Another cause of the intermittent fever is in the inherited dyscrasia of the patient - psoric & tubercular diathesis.²

SYMPTOMATOLOGY OF FEVER

- Fever may not be with any symptoms but in most cases where the temperature is being elevated may be with feeling of chills, shivers or rigors, hot feeling.
- Headache, restlessness, vague pains in the limbs, back are common. Weakness, malaise, skin hot & dry to touch, rapid pulse & respiration.
- Skin rashes in exanthematous fevers like Measles, Chicken pox etc, which is distinctive than other causes of fever.
- Anorexia, tongue furred, constipated bowels, high coloured urine scanty.
- In children vomiting, convulsions may onset an attack of fever.

Following facts may be kept in mind regarding fevers.

- 1) A sudden high temperature in a previous healthy without other symptoms indicates Flu, Tonsillitis, Pneumonia, UTI.
- 2) A very gradual onset of fever is suggestive TB, Typhoid. etc.
- 3) A fresh rise of temperature after it has begun to fall indicates a complication or relapse.
- 4) A sudden fall in temperature during the course of fever may be due to haemorrhage, perforation, or profuse diarrhoea.
- 5) In non -febrile states like tetanus, delirium tremens, cancer, apoplexy, etc if there is rise of temperature indicates fatal termination.³

INVESTIGATIONS

Although investigations may not diagnose remedies, it is essential to know nosological diagnosis, prognosis, diet regimens etc. Moreover appropriate tests should be ordered, if diagnosis is obvious no need.

- i. **CBC**: To know type of infection-for eg. Polymorphonuclear leucocytosis -bacterial infection.
- ii. **NEUTROPENIA**: Viral, Brucellosis, Typhoid, Septicemia.
- iii. **LYMPHOCYTOSIS**: Viral, whooping cough, Infectious mononucleosis(atypical). Eosinophilia: Parasitic, helminthiasis, allergy.
- iv. **ESR & C-REACTIVE PROTEINS**: Raised. Liver biochemistry often abnormal, serum transferases in hepatitis & other infections.
- v. **URINE ANALYSIS**: Routinely done even if no symptoms.
- vi. **CHEST X-RAY**: Reveal patc of pneumonia, pleurisy, neoplasia.
- vii. **SPECIAL TESTS**: for specific nosological diagnostics ie Blood culture, CSF, CT SCAN, USG for Homoeopathic palliative approach & prognosis in terminal gross pathological cases.2

• PYREXIA OF UNKNOWN ORIGIN

DEFINITION - The definition of PUO dates back to 1961. It was classically defined as a temperature above 38.0 C, on multiple occasions more than 3 weeks, without diagnosis, despite investigations in hospital for 1 week.

Now the definition --> PUO -Investigation over 3 days of IPD care, 3 OPD visits or 1 week of intense ambulatory investigation is defined as PUO.

Subsets PUO are HIV-1 related, Immune-deficient or Nosocomial. Upto 1/3rd of cases of PUO remain undiagnosed.6

AETIOLOGY: Differential diagnosis of PUO is broad is & can be grouped into 4 based on aetiology

- a) Infections (30%) b) Malignancy (20%) c) Connective tissue disorders.
- d) Miscellaneous (20%).
- a) INFECTIONS --> SPECIFIC LOCATIONS:
 1. Abscesses -hepatobiliary, urinary tract, pulmonary, CNS.
 2. Infections oral cavity, head, neck, brain, sinuses.
 3. Bone, Joints.
 4. Infective endocarditis.
- SPECIFIC ORGANISMS: 1. TB, HIV-1, CMV, EPBV, Fungal, Infections of fastidious (Borrelia spp).
- SPECIFIC PATIENT GROUPS:
 - i. In geographically restricted -Malaria, dengue, rickettsial, amoebic liver abscess, (Africa, Asia, Americas south-central). Leshmania -spp (South Europe, India, Africa).
 - ii. Residence or travel to endemic areas TB (Africa, Asia, Americas).
 - iii. Nosocomial: Pneumonia, Prosthetic infections, Surgery, Catheter etc. 4. HIV Positive (acute-retroviral, AIDS, CMV).
- b) MALIGNANCY (20%) 1. Haematological - lymphoma, leukaemia etc. 2. Solid tumours (Renal, liver, colon).
- c) CONNECTIVE TISSUE DISORDERS-- 1. Older adults (Temporal arteritis) 2. Younger adults (Still's disease, SLE, Vasculitic disorders.) etc.
- d) MISCELLANEOUS (20%)
 1. CVS> (Atrial Myxoma, aortitis, etc).
 2. Respiratory> (Sarcoidosis, embolism.).

FEVER

3. GIT>(IBD,Hepatitis,ALD,Pancreatitis.).
4. Haematologica> (H.Anaemia, Thrombocytopenia purpura etc.)
5. Inherited >(Familial Mediterranean fever.)
6. Drug reactions (Antibiotics fever).
7. Idiopathic fevers(15%).

INVESTIGATIONS PUO--->

Microscopy, Culture, Antigen detection, Nucleic Acid detection.³

PROGNOSIS--No cause is found in 10% of PUO but there is significant loss of weight or signs long term mortality is low.³

OTHER TYPES OF FEVER-->

1. Fever in injection drug users.
2. Fever in Immunocompromised host
3. Neutropenic fever
4. Post transplantation fever.
5. Central-venous catheter fever
6. Fever in the Tropics. ³

• APPROACH TO FEVERS FROM THERAPEUTIC POINT OF VIEW & GENERAL MANAGEMENT REGIMEN & REMEDIAL DIFFERENTIAL DIAGNOSIS

- It is essential to determine fever totality to diagnose the remedie.
- The cause, -ailment from, - the chill, & its time modalities, characteristic sign or symptoms, its concomitant, & most important apyrexial picture. This constitutes fever totality.
- Determination of constitutional miasm, is important as the severity of relapsing tendencies of the of attack paroxysm depends upon miasmatic background & remedies diagnosed on the basis of totality of subjective-objective-miasmatic symptoms of the patient (Psoric & tubercular diathesis).

2Therapeutics - Remedial Differential Diagnosis

In the literature & critically going through the writings of elders, we see the wisdom & therefore drugs are grouped according to their expressions seen in the 1st, 2nd, 3rd week of fever.

1. **ACONITE**- is diagnosed with sudden development of chill followed by acute, sudden & violent fever.
 - caused by exposure to dry cold winds draft or checked perspiration.
 - thirst, restlessness, anxiety, fear, exalted sensibility
 - drenching sweats > all complaints
2. **BELLADONNA** - sudden congestion, furious excitement, perverted senses
 - skin is hot, red, flushed, throbbing carotids, dilated pupils-blood shot eyes
 - tonsillitis, red throat, hot, dry nausea & vomiting with hot head, delirium
3. **RHUS TOX**- developing fever in dentition, after getting wet, while perspiring, restlessness, with continuing change of position < night, with severe muscular pains with constant desire to stretch, chill, heat with flushing of skin, shining texture.
4. **EUPATORIUM PERF** - paroxysms of fever in morning.
 - Thirst several hours before the chill develops, continues during the chill & heat stage.
 - vomiting is present with the drinking, & break bone like pains
5. **GELSEMIUM** - muscular soreness, prostration headache
 - anticipatory anxiety due to bad news, grief fear, hastiness the chill. followed by heat of face & head
 - staggering & incoordination of muscles
 - imperceptible slow pulse

- dullness, dizziness, drowsiness, profuse urination, septic, intermitant fevers, early stage of typhoid, chilliness in the back
- 6. **ARS ALB** - is diagnosed with fever after cold, overripe fruits, ice creams, sore beer, strong cheese with derangement of stomach & fever.
 - fever within & burning, body is externally cold
 - frequent thirst, fear, restlessness, shivering in the morning with heat by 2pm with marked periodicity
 - intermittent fevers, typhoid fevers, blood poisoning, eruptive fevers
- 7. **BRYONIA** - fever developing after iced water, cold food, after getting heated in the sun, sultry weather or cold wind. Fever with chagrin, anger, with headache body ache, stitching pains, < slightest motion
 - thirst for large quantities of water at larger intervals
- 8. **CHINA** - fever with peculiar chill, shivering in the morning, weakness in the limbs, < walking in the open air, heat stage in the afternoon, & all the stages are well marked, chill with violent thirst, headache with intermittent fever.
- 9. **NATRUM MUR** - chill begins at 10am to 11am, with thirst, pain, drinking does not relieve the thirst but profuse thirst relieves all the symptoms
 - throbbing headache with chill & fever, loose stools-malaria
 - Fever with itching on the body. Intermittent fever with headache
- 10. **ACID PHOS** - diagnosed with debility, stupor, diarrhea, rattling mucous in the chest, in typhoid
 - delirium cold extremities, discharges involuntary
 - temperature is low, still nose bleed, involuntary, undigested stool, milky & albuminous urine.
- 11. **PYROGEN** - fever after septicemia, puerperal or post surgical.
 - severe bone pains in limbs. Sudden heat with rising temperature - pulse is out of proportion to fever rapid.
- 12. **MERCURIUS** - diagnosed in catarrhal, gastric, bilious fevers, sensitive to cold, tongue flabby, clean or light coated offensive.
 - nocturnal aggravation, hectic fever, creeping chill, perspiration does not relieve the fever, still there is tendency to free perspiration
- 13. **OSCILLOCOCCINUM** - is diagnosed in the beginning of influenza & in convalescence.
 - in Flu with bursting headaches, muscular pains
- 14. **NUX VOM** - diagnosed in chilly subjects, needs to cover every stage, but body burning hot
 - pain in the limbs, back, with gastric symptoms. Chill with thirst & heat, without thirst.2

• **REGIMEN - DIET**

1. Cold wet application in high fever, enough rest, warm sponge bath
2. Diet consists of nourishing fluids, boiled barley with lemonade, glucose waters, fruits
3. Soft cooked rice water - khichdi cooked to taste with 4 tablespoons, boiled egg with pepper salt
4. Warm drinks. 2

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PAEDIATRIC FEVER

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INTRODUCTION:

Normal body temperature varies from person to person and throughout the day. Normal body temperature is highest in children who are preschool aged. Several studies have documented that peak temperature tends to be in the afternoon and is highest at about 18 to 24 months of age when many normal healthy children have a temperature as high as 38.3° C (101° F). However, fever usually is defined as a core body (rectal) temperature $\geq 38.0^{\circ}\text{C}$ (100.4° F).

Significance of fever depends on clinical context rather than peak temperature; some minor illnesses cause high fever, whereas some serious illnesses cause only a mild temperature elevation. Although parental assessment is frequently clouded by fear of fever, the history of a temperature taken at home should be considered equivalent to a temperature taken in the clinic.

PATHOPHYSIOLOGY OF FEVER IN INFANT AND CHILDREN:

Fever occurs in response to the release of endogenous pyrogenic mediators called cytokines (in particular interleukin-1 [IL-1]). Cytokines stimulate the production of prostaglandins by the hypothalamus; prostaglandins readjust and elevate the temperature set point.

Fever plays an integral role in fighting infection and, although it may be uncomfortable, does not necessitate treatment in an otherwise healthy child. Some studies even indicate that lowering the temperature can prolong some illnesses. However, fever increases the metabolic rate and the demands on the cardiopulmonary system. Therefore, fever can be detrimental to children with pulmonary or cardiac compromise or neurological impairment. It can also be the catalyst for febrile seizures, which although typically benign, are very concerning to parents and must also be distinguished from more serious disorders (eg, meningitis).

ETIOLOGY OF FEVER IN INFANTS AND CHILDREN

Causes of fever differ based on whether the fever is acute (>14 days), acute recurrent or periodic (episodic fever separated by afebrile periods), or chronic (> 14 days), which is more commonly referred to as fever of unknown origin (FUO). Response to antipyretics and height of the temperature have no direct relationship to the etiology.

Acute fever

Most acute fevers in infants and young children are caused by infection. The most common are

- Viral respiratory or gastrointestinal infections (most common causes overall)
- Certain bacterial infections (otitis media, pneumonia, urinary tract infections)

However, potential infectious causes of acute fever vary with the child's age. Neonates (infants < 28 days) are considered functionally immunocompromised because they often fail to contain infection locally and, as a result, are at higher risk of serious invasive bacterial infections most commonly caused by organisms acquired during the perinatal period.

The most common perinatal pathogens in neonates are group B streptococci, *Escherichia coli* (and other gram-negative enteric organisms), *Listeria monocytogenes*, and herpes simplex virus. These organisms can cause bacteremia (viremia with herpes simplex), pneumonia, pyelonephritis, meningitis, and/or sepsis.

Most febrile children 1 month to 2 years of age without an obvious focus of infection on examination (fever without source [FWS]) have self-limited viral disease. However, a small number (perhaps < 1% in the post conjugate vaccine era) of such patients are early in the course of a serious infection (eg, bacterial meningitis). Thus, the main concern in a patient with FWS is whether occult bacteremia (pathogenic bacteria in the bloodstream without focal symptoms or signs on examination) is present. The most common causative organisms of occult bacteremia are *Streptococcus pneumoniae* and *Haemophilus influenzae* type b. The widespread use of vaccinations against both of these organisms has made occult bacteremia much less common.

Noninfectious causes of acute fevers include Kawasaki disease, heatstroke, and toxic ingestions (eg, of drugs with anticholinergic effects). Some vaccinations can cause fever either in the first 24 to 48 hours after the vaccine is given (eg, with pertussis vaccination) or 1 to 2 weeks after the vaccine is given (eg, with measles vaccination). These fevers typically last from a few hours to a day. If the child is otherwise well, no evaluation is necessary. Teething does not cause significant or prolonged fevers.

Acute recurrent or periodic fever

Acute recurrent or periodic fever is episodes of fever alternating with periods of normal temperature (see Table: Some Common Causes of Fever in Children).

Chronic fever

Fever that occurs daily for ≥ 2 weeks and for which initial cultures and other investigations fail to yield a diagnosis is considered fever of unknown origin (FUO).

Potential categories of causes include localized or generalized infection, connective tissue disease, and cancer. Miscellaneous specific causes include inflammatory bowel disease, diabetes insipidus with dehydration, and disordered thermoregulation. Pseudo FUO is likely much more common than true FUO because frequent, minor viral illness may be over-interpreted. In children, despite the numerous possible causes, true FUO is more likely to be an uncommon manifestation of a common disease rather than an uncommon disease; respiratory infections account for almost one half of cases of infection-associated FUO.



EVALUATION OF FEVER IN INFANT AND CHILDREN

History

History of present illness should note degree and duration of fever, method of measurement, and the dose and frequency of antipyretics (if any). Important associated symptoms that suggest serious illness include poor appetite, irritability, lethargy, and change in crying (eg, duration, character). Associated symptoms that may suggest the cause include vomiting, diarrhea (including presence of blood or mucus), cough, difficulty breathing, favoring of an extremity or joint, and strong or foul-smelling urine. Drug history should be reviewed for indications of drug-induced fever.

Factors that predispose to infection are identified. In neonates, these factors include prematurity, prolonged rupture of membranes, maternal fever, and positive prenatal tests (usually for group B streptococcal infections, cytomegalovirus infections, or sexually transmitted diseases). For all children, predisposing factors include recent exposures to infection (including family, caregiver, and school or daycare infection), indwelling medical devices (eg, catheters, ventriculoperitoneal shunts), recent surgery, travel and environmental exposures (eg, to endemic areas, to ticks, mosquitoes, cats, farm animals, or reptiles), and known or suspected immune deficiencies.

Review of systems should note symptoms suggesting possible causes, including runny nose and congestion (viral upper respiratory infection), headache (sinusitis, Lyme disease, meningitis), ear pain or waking in the night with signs of discomfort (otitis media), cough or wheezing (pneumonia, bronchiolitis), abdominal pain (pneumonia, strep pharyngitis, gastroenteritis, urinary tract infection, abdominal abscess), back pain (pyelonephritis), and any history of joint swelling or redness (Lyme disease, osteomyelitis). A history of repeated infections (immunodeficiency) or symptoms that suggest a chronic illness, such as poor weight gain or weight loss (tuberculosis, cancer), is identified. Certain symptoms can help direct the evaluation toward noninfectious causes; they include heart palpitations, sweating, and heat intolerance (hyperthyroidism) and recurrent or cyclic symptoms (a rheumatoid, inflammatory, or hereditary disorder). Past medical history should note previous fevers or infections and known conditions predisposing to infection (eg, congenital heart disease, sickle cell anemia, cancer, immunodeficiency). A family history of an autoimmune disorder or other hereditary conditions (eg, familial dysautonomia, familial Mediterranean fever) is sought. Vaccination history is reviewed to identify patients at risk of infections that can be prevented by a vaccine.

Physical Examination

Vital signs are reviewed, noting abnormalities in temperature and respiratory rate. In ill-appearing children, blood pressure should also be measured. Temperature should be measured rectally in infants for accuracy. Any child with cough, tachypnea, or labored breathing requires pulse oximetry.

The child's overall appearance and response to the examination are important. A febrile child who is overly compliant or listless is of more concern than one who is uncooperative. However, an irritable infant or child who is inconsolable is also of concern. The febrile child who looks quite ill, especially when the temperature has come down, is of great concern and requires in-depth evaluation and continued observation. However, children who appear more comfortable after antipyretic therapy do not always have a benign disorder.

Red flags

The following findings are of particular concern:

- **Age < 1 month**
- **Lethargy, listlessness, or toxic appearance**
- **Respiratory distress**
- **Petechiae or purpura**
- **Inconsolability**

Interpretation of findings

Although serious illness does not always cause high fever and many high fevers result from self-limited viral infections, a temperature of $\geq 39^{\circ}\text{C}$ in children < 36 months indicates higher risk of serious bacterial infection.

Other vital signs also are significant. Hypotension should raise concern about hypovolemia, sepsis, or myocardial dysfunction. Tachycardia in the absence of hypotension may be caused by fever (10 to 20 beats/minute increase for each degree above normal) or hypovolemia. An increased respiratory rate may be a response to fever, indicate a pulmonary source of the illness, or be respiratory compensation for metabolic acidosis.

Acute fever is infectious in most cases, and, of these, most are viral. History and examination are adequate to make a diagnosis in children > 36 months who are otherwise well and not toxic-appearing. Typically, they have a viral respiratory illness (recent ill contact, runny nose, wheeze, or cough) or gastrointestinal illness (ill contact, diarrhea, and vomiting). Other findings also suggest specific causes.

In infants and children < 36 months, the possibility of occult bacteremia, plus the frequent absence of focal findings in neonates and young infants with serious bacterial infection, necessitates a different approach. Evaluation varies by age group. Accepted categories are neonates (≤ 28 days), young infants (1 to 3 months), and older infants and children (3 to 36 months). Regardless of clinical findings, a neonate with fever requires immediate hospitalization and testing to rule out a dangerous infection. Young infants may require hospitalization depending on screening laboratory results and the likelihood that they will be brought in for follow-up.

Acute recurrent or periodic fever and chronic fever (FUO) require a high index of suspicion for the many potential causes. However, certain findings can suggest the disorder: aphthous stomatitis, pharyngitis and adenitis (PFAPA syndrome); intermittent headaches with runny nose or congestion (sinusitis); weight loss, high-risk exposure, and night sweats (tuberculosis); weight loss or difficulty gaining weight, heart palpitations, and sweating (hyperthyroidism); and weight loss, anorexia, and night sweats (cancer).

TESTING

Testing depends on age, appearance of the child, and whether the fever is acute or chronic.

FEVER

TESTING FOR ACUTE FEVER

For acute fever, testing for infectious causes is directed by the age of the child. Typically, children < 36 months, even those who do not appear very ill and those who have an apparent source of infection (eg, otitis media), require a thorough search to rule out serious bacterial infections (eg, meningitis, sepsis/bacteremia, urinary tract infection). In this age group, early follow-up (by phone and/or outpatient visit) is important for all those managed at home.

Febrile children < 1 month of age

All febrile children < 1 month of age require a white blood cell (WBC) count with a manual differential, blood cultures, urinalysis and urine culture (obtained by catheterization, not an external bag), and cerebrospinal fluid (CSF) evaluation with culture and appropriate polymerase chain reaction (PCR) testing (eg, for herpes simplex, enterovirus) as indicated by historical risk factors. Inflammatory marker levels (C-reactive protein, procalcitonin, or both) may be measured to assist with risk assessment. Chest x-ray is done in neonates with respiratory manifestations. Stool is sent for culture or enteric PCR stool test in neonates with diarrhea.

Neonates are hospitalized and given empiric IV antibiotic coverage for the most common neonatal pathogens (eg, using ampicillin and gentamicin or ampicillin and cefotaxime); antibiotics are continued until a serious bacterial infection is ruled out by negative blood, urine, and CSF cultures or a specific diagnosis is made. Acyclovir also should be given if neonates are ill-appearing, have mucocutaneous vesicles, have a maternal history of genital herpes simplex virus (HSV) infection, or have seizures, hypothermia, leukopenia, thrombocytopenia, or elevated alanine aminotransferase (ALT); acyclovir is stopped if CSF HSV PCR testing and mucocutaneous vesicle HSV culture (if done) results are negative.

Febrile children between 1 month and 3 months of age

Febrile children between 1 month and 3 months of age require a different approach, which has evolved over the last few decades because the number of children in this age group who turn out to have a potentially serious bacterial infection has been markedly reduced by routine immunization against *H. influenzae* type b and *S. pneumoniae*. Clinicians must nonetheless maintain vigilance because, although serious bacterial infections have been reduced, they have not been eliminated. Therefore, clinicians who choose to observe without treatment or send home under parental observation need to have a greater certainty regarding that child's low-risk status than that of a child who is tested, admitted, and treated.

Infants in this 1- to 3-month age group are differentiated based on

- **Temperature**
- **Clinical appearance (ill- or well-appearing, as below)**
- **Laboratory results**
- **Ill-appearing febrile infants**

Febrile infants between 1 month and 3 months of age who are ill-appearing (eg, abnormal cry, lethargy, rectal temperature > 38.5° C) or who have risk factors for serious bacterial infection (eg, significant congenital anomalies, prematurity, technology dependence, unvaccinated) should be admitted to the hospital and have a WBC count with a manual differential, blood cultures, urinalysis and urine culture (obtained by catheterization, not an external bag), and lumbar puncture with CSF evaluation, including culture and, if available, PCR panel. Inflammatory marker levels (C-reactive protein [CRP], procalcitonin, or both) may be measured to assist with risk assessment. Chest x-ray and a respiratory PCR panel should be done in those with respiratory manifestations, and stool is sent for stool culture or enteric PCR stool test in those with diarrhea. These infants should be given age-specific empiric parenteral antibiotic therapy (eg, ceftriaxone) until serious bacterial infection is ruled out by negative cultures or a specific diagnosis is made.

Well-appearing febrile infants

Well-appearing febrile infants between 29 days and 60 days of age with all of the following are at low risk of serious bacterial infections:

- Rectal temperature $< 38.5^{\circ}\text{C}$
- Normal WBC count (5,000 to 15,000/mcL [5 to $15 \times 10^9/\text{L}$] and an absolute neutrophil count $< 4000/\text{mcL}$ [$< 4 \times 10^9/\text{L}$])
- Normal inflammatory marker levels (procalcitonin $< 0.5\text{ ng/mL}$ [$< 0.5\text{ mg/L}$] and/or CRP $< 2\text{ mg/dL}$ [$< 20\text{ mg/L}$])
- Normal urinalysis (and CSF analysis and chest x-ray, if done)

Blood and urine cultures should be obtained. Some experts defer lumbar puncture in these infants who meet the above criteria, but guidelines regarding minimum necessary testing in this age group continue to evolve based on changing bacteriology and advances in testing (eg, inflammatory markers, pathogen identification with rapid PCR testing) (1).

In addition, well-appearing febrile infants in this age group with a respiratory syncytial virus (RSV), influenza, or other viral infection documented by PCR testing during a period of high seasonal prevalence and who have a normal urinalysis seem to have a markedly reduced risk of serious bacterial infection, which some experts believe permits modifications to the above recommendations, meaning the infants might not necessarily require blood or CSF studies.

These infants can be managed as outpatients if reliable follow-up is arranged within 24 to 36 hours either by telephone or by return visit, at which time preliminary culture results are reviewed. If the family's social situation suggests that follow-up within 24 to 36 hours is problematic, infants should be admitted to the hospital and observed. If infants are sent home, any deterioration in clinical status or worsening of fever, a positive blood culture not thought to be a contaminant, or a positive urine culture in an infant who remains febrile warrants immediate hospitalization with repeat cultures and age-specific empiric antibiotic therapy (eg, ceftriaxone) until serious bacterial infection is ruled out by repeat culture results or a specific diagnosis is made.

In well-appearing febrile infants between 61 days and 90 days of age without risk factors for serious bacterial infection, many experts defer blood and CSF studies pending urinalysis results.

When testing is done in well-appearing infants between 1 month and 3 months of age, infants who have any of the following should be admitted to the hospital for treatment with age-specific empiric parenteral antibiotics as described above:

- CSF pleocytosis
- An abnormal urinalysis or chest x-ray
- A peripheral WBC count $\leq 5,000/\text{mcL}$ ($\leq 5 \times 10^9/\text{L}$) or $\geq 15,000/\text{mcL}$ ($\geq 15 \times 10^9/\text{L}$)
- An absolute neutrophil count $\leq 4000/\text{mcL}$ ($\leq 4 \times 10^9/\text{L}$)
- Abnormal inflammatory marker levels (procalcitonin $> 0.5\text{ ng/mL}$ [$> 0.5\text{ mg/L}$] and/or CRP $> 2\text{ mg/dL}$ [$> 20\text{ mg/L}$])

If empiric antibiotics are to be given, lumbar puncture with CSF analysis should be strongly considered if not previously done, especially in infants 29 to 60 days of age.

Some experts believe that well-appearing infants between 1 month and 3 months of age with an abnormal urinalysis but otherwise reassuring examination and laboratory results can be safely managed with antibiotics at home if close follow-up is assured within 24 hours (1).

Febrile children between 3 months and 36 months of age

Febrile children between 3 months and 36 months of age who have an apparent source of fever on examination and who do not appear ill or toxic can be managed based on the clinical diagnosis. Children in this age group who are ill-appearing should be fully evaluated for serious bacterial infection with WBC count and cultures of blood, urine, and, when meningitis is suspected, CSF. Those with tachypnea or a WBC count $> 20,000/\text{mcL}$ ($> 20 \times 10^9/\text{L}$) should have a chest x-ray. These children should be given parenteral antibiotic therapy (usually using ceftriaxone) targeting the likely pathogens in this age group (*S. pneumoniae*, *Staphylococcus aureus*, *Neisseria meningitidis*, *H. influenzae* type b) and be admitted to the hospital pending culture results.

Well-appearing children in this age group who have a temperature $> 39^\circ \text{C}$ and no identifiable source on examination (fever without source) and who are not fully immunized have a risk of occult bacteremia as high as 5% (equal to the risk before the pneumococcal and *H. influenzae* conjugate vaccines came into use). These children should have a complete blood count with differential, blood culture, and urinalysis and urine culture. A chest x-ray should be done if the WBC count is $> 20,000/\text{mcL}$ ($\geq 20 \times 10^9/\text{L}$). Children who have a WBC count $\geq 15,000/\text{mcL}$ ($\geq 15 \times 10^9/\text{L}$) should be given parenteral antibiotics pending blood and urine culture results. Ceftriaxone (50 mg/kg IM) is preferred because of its broad antimicrobial spectrum and prolonged duration of action. Children who received parenteral antibiotics should have follow-up within 24 hours by telephone or by return visit, at which time preliminary culture results are reviewed. If the social situation suggests that follow-up within 24 hours is problematic, children should be admitted to the hospital. Children who are not treated with antibiotics should be brought for reevaluation if they are still febrile ($\geq 38^\circ \text{C}$) after 48 hours or earlier if they become sicker or if new symptoms or signs develop.

Well-appearing children in this age group who have a temperature $> 39^\circ \text{C}$ and fever without identifiable source and who are completely immunized have a risk of bacteremia $< 0.5\%$. At this low-risk level, most laboratory testing and empiric antibiotic therapy are neither indicated nor cost-effective. However, because urinary tract infection (UTI) can be an occult source of infection in fully immunized children in this age group, girls < 24 months, circumcised boys < 6 months, and uncircumcised boys < 12 months should have a urinalysis and urine culture (obtained by catheterization, not an external bag) and be appropriately treated if UTI is detected. For other completely immunized children, urine testing is done only when they have symptoms or signs of UTI, they have a prior history of UTI or urogenital anomalies, or fever has lasted > 48 hours.

For all children, caregivers are instructed to return immediately if fever becomes higher, the child looks sicker, or new symptoms or signs develop.

Febrile children > 36 months of age

For febrile children > 36 months of age, testing is directed by history and examination. In this age group, a child's response to serious illnesses is sufficiently developed to be recognized clinically (eg, nuchal rigidity is a reliable finding of meningeal irritation), so empiric testing (eg, screening WBC counts, urine and blood cultures) is not indicated.

Acute Recurrent or Periodic Fever

For acute recurrent or periodic fever, laboratory tests and imaging should be directed toward likely causes based on findings from the history and physical examination. PFAPA syndrome should be considered in young children who have periodic high fever at intervals of about 3 to 5 weeks with aphthous ulcers, pharyngitis, and/or adenitis. Between episodes and even during the episodes, the children appear healthy.

Diagnosis requires 6 months of stereotypic episodes, negative throat cultures during episodes, and exclusion of other causes (eg, specific viral infections). In patients with attacks of fever, arthralgia, skin lesions, mouth ulcers, and diarrhea, IgD levels should be measured to look for hyperimmunoglobulinemia D syndrome (HIDS). Laboratory features of HIDS include elevated C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) and markedly elevated IgD (and often IgA).

Genetic testing is available for familial Mediterranean fever (FMF), TNF receptor–associated periodic syndrome (TRAPS), and HIDS.

TESTING FOR CHRONIC FEVER

For chronic fever (fever of unknown origin [FUO]), laboratory tests and imaging should be directed toward likely causes of fever based on the patient's age and findings from the history and physical examination. Indiscriminate ordering of laboratory tests is unlikely to be helpful and can be harmful (ie, because of adverse effects of unnecessary confirmatory testing of false positives). The pace of the evaluation is dictated by the appearance of the child. The pace should be rapid if the child is ill-appearing, but can be more deliberate if the child appears well.

All children with FUO should have

- **Complete blood count with manual differential**
- **Erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP)**
- **Blood cultures**
- **Urinalysis and urine culture**
- **Chest x-ray**
- **Serum electrolytes, blood urea nitrogen (BUN), creatinine, albumin, and hepatic enzymes**
- **HIV serology**
- **Tuberculin skin test or interferon-gamma release assay**

The results of these studies in conjunction with findings from the history and physical examination can focus further diagnostic tests.

Anemia may be a clue to malaria, infective endocarditis, inflammatory bowel disease, systemic lupus erythematosus, or tuberculosis (TB). Thrombocytosis is a nonspecific acute-phase reactant. The total WBC count and the differential generally are less helpful, although children with an absolute neutrophil count $> 10,000/\text{mcL}$ ($> 10 \times 10^9/\text{L}$) have a higher risk of serious bacterial infection. If atypical lymphocytes are present, a viral infection is likely. Immature WBCs should prompt further evaluation for leukemia. Eosinophilia may be a clue to parasitic, fungal, neoplastic, allergic, or immunodeficiency disorders.

The ESR and CRP are nonspecific acute-phase reactants that are general indicators of inflammation; an elevated ESR or CRP makes factitious fever less likely. A normal ESR or CRP can slow the pace of the evaluation. However, ESR or CRP may be normal in noninflammatory causes of FUO.

Blood cultures should be done in all patients with FUO at least once and more often if suspicion of serious bacterial infection is high. Three blood cultures should be done over 24 hours in patients who have any manifestations of infective endocarditis. A positive blood culture, particularly for *S. aureus*, should raise suspicion for occult skeletal or visceral infection or endocarditis and lead to performance of a bone scan and/or echocardiography.

Urinalysis and urine culture are important because UTI is among the most frequent causes of FUO in children. Patients with FUO should have a chest x-ray to check for infiltrates and lymphadenopathy even if lung examination is normal. Serum electrolytes, BUN, creatinine, and hepatic enzymes are measured to check for renal or hepatic involvement. HIV serologic tests and a tuberculin skin test (using purified protein

HOMOEOPATHIC MANAGEMENT OF FEVER IN CHILDREN

1. Camphor : If fever comes along with chilliness and the patient suffers from these symptoms in the early stage of fever as sensation of fever or coryza, watery nose and aggravation of the symptoms of fever by doing a little labour, the patient should take one drop Mother Tincture of the medicine Camphor thrice a day.

2. Ipecac: Intermittent fever: in beginning of irregular cases; with nausea, or from gastric disturbance; after abuse of, or suppression from quinine. Intermittent dyspepsia, every other day at same hour; fever, with persistent nausea. Oversensitive to heat and cold. Adapted to cases where the gastric symptoms predominate. Tongue clean or slightly coated. In all diseases with constant and continual nausea. Nausea; with profuse saliva; vomiting of white, glairy mucus in large quantities, without relief; sleepy afterwards; Aggravation; periodically; from veal, moist warm wind, lying down.

3. Aconite: Fever: Skin dry and hot; face red, or pale and red alternately; intense nervous restlessness, tossing about in agony; becomes intolerable towards evening and on going to sleep. Complaints caused by exposure to dry cold air, dry north or west winds, or exposure to draughts of cold air while in a perspiration; bad effects of checked perspiration. Great fear and anxiety of mind, with great nervous excitability; Restless, anxious, does everything in great haste; must change position often; everything startles him. Tongue coated white. Intense thirst. Thirst for cold water. Bitter taste of everything except water. Aggravation Evening and night, pains are insupportable; in a warm room; when rising from bed; lying on affected side.

Amelioration In the open air Aconite should never be given simply to control the fever, never alternated with other drugs for that purpose. If it be a case requiring Aconite no other drug is needed;

4. Belladonna: Fever: A high feverish state with comparative absence of toxaemia. Burning, pungent, steaming, heat. Feet icy cold. Superficial blood-vessels, distended. Perspiration dry only on head. No thirst with fever. Belladonna always is associated with hot, red skin, flushed face, glaring eyes, throbbing carotids, excited mental state, hyperaesthesia of all senses, delirium, restless sleep, convulsive movements, dryness of mouth and throat with aversion to water. Worse; touch, jar, noise, draught, after noon, lying down. Better; semi-erect.

5. Glonoine: If fever comes because of sunstrokes and the patient suffers from severe pain, he should take Glonoine 30.

6. Ferrum Phos: If the patient has no symptom of fever, this biochemical medicine should be given to the patient at the regular intervals of 2-3 hours. Take this medicine until fever subsides completely.

7. Rhus Tox: If a person becomes the victim of fever after wetting in water, the use of Rhus Tox 30 provides a lot of relief. The medicine Dulcamara also can be used for the treatment of fever. Adynamic; restless, trembling. Typhoid; tongue dry and brown; sordes; bowels loose; great restlessness. Intermittent; chill, with dry cough and restlessness. During heat, urticaria. Hydroa. Chilly, as if cold water were poured over him, followed by heat and inclination to stretch the limbs. Ailments: from spraining or straining a single part, muscle or tendon; overlifting, particularly damp ground; too much summer bathing in lake or river. Great restlessness, anxiety, apprehension; cannot remain in bed, must change position often to obtain relief from pain. Corners of mouth ulcerated, fever blisters around mouth and on chin. Tongue: dry, sore, red, cracked; triangular red tip; takes imprint of teeth. Great thirst, with dry tongue, mouth and throat. Aggravation; during sleep, cold, wet rainy weather and after rain; at night, during rest, drenching, when lying on back or right side. Amelioration; warm, dry weather, motion; walking, change of position, rubbing, warm applications, from stretching out limbs.

8. Nux Vomica: If the cause of fever is constipation, the use of Nux Vomica 30 provides a lot of relief. This medicine is cold natured but it is used in that condition when the patient feels cold and heat alternately. Fever; Cold stage predominates. Paroxysms anticipate in morning. Excessive rigor, with blueness of finger-nails. Aching in limbs and back, and gastric symptoms. Chilly, must be covered in every stage of fever. Perspiration sour; only one side of body. Chilliness on being uncovered, yet he does not allow being covered. Dry heat of the body. Oversensitive: to external impressions; to noise, odors, light or music; trifling ailments are unbearable; every harmless word offends. Bad effects of: coffee, tobacco, alcoholic stimulants; highly spiced or seasoned food; over-eating; long-continued mental over-exertion; sedentary habits; loss of sleep; aromatic or patent medicine; sitting on cold stones, especially in warm weather. Aggravation; morning, mental exertion, after eating, touch, spices, stimulants, narcotics, dry weather, cold. Amelioration; from a nap, if allowed to finish it; in evening, while at rest, in damp, wet weather, strong pressure.

9. Lyco: If the woman suffers from fever in the evening from 4 to 8 'o' clock, the medicine Lyco can be given to her. Fever; Chill between 3 and 4 p.m., followed by sweat. Icy coldness. Feels as if lying on ice. One chill is followed by another. Neglected pneumonia, with great dyspnoea, flying of alae nasae and presence of mucous rales. For persons intellectually keen, but physically weak; upper part of body emaciated, lower part semi-dropsical; predisposed to lung and hepatic affections. Ailments from fright, anger, mortification, or vexation with reserved displeasure. Intolerant of cold drinks; Craves everything warm. Aggravation; right side, from right to left, from above downward, 4 to 8 p.m.; from heat or warm room, hot air, bed. Warm applications, except throat and stomach which are better from warm drinks. Amelioration; By motion, after midnight, from warm food and drink, on getting cold, from being uncovered.

10. Bryonia: If fever comes again and again after disappearing once, the patient should take Bryonia 30 for relief. This medicine is also useful in typhoid too. Fever; Pulse full, hard, tense, and quick. Chill with external coldness, dry cough, stitches. Internal heat. Sour sweat after slight exertion. Easy, profuse perspiration. Rheumatic and typhoid marked by gastro-hepatic complications. Complaints: when warm weather sets in, after cold days; from cold drinks or ice in hot weather; after taking cold or getting hot in summer; from chilling when overheated; Lips parched, dry, cracked. dryness of mouth, tongue, and throat, with excessive thirst. Tongue coated yellowish, dark brown; heavily white in gastric derangement. Bitter taste. Aggravation; warmth, any motion, morning, eating, hot weather, exertion, touch. Cannot sit up; gets faint and sick. Amelioration; lying on painful side, pressure, rest, cold things.

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SURGICAL FEVER

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Basically fever is a medical entity and not a surgical entity per se. It is usually classified as

- A) Intermittent Fever**
- B) Remittent Fever**
- C) Hectic Fever/ Sustained Fever**
- D) Continuous Fever**
- E) Relapsing Fever**

Intermittent fever is one where temperature is present for only some hours during day & remits to normal for remaining hours Eg- Malaria, Kala-azar.

Remittent fever is one where temperature remains above normal temperature throughout the day & fluctuates more than 1°C in 24 hours Eg- Typhoid, Infective Endocarditis.

Hectic fever is one where temperature swings widely throughout the day at least 1.4°C between the highest & lowest temperature.

Continuous fever is one where temperature remains above normal temperature throughout the day & does not fluctuate more than 1°C in 24 hours Eg- Urinary tract infection, Typhoid, Lobar Pneumonia.

Fever can be accompanied by other symptoms like sweat, chills, headache, lack of appetite, myalgia, rash, restlessness or fatigue.

Common causes for fever can include conditions like Gastroenteritis, Appendicitis, ENT infections, Skin or Bladder infections.

Vector borne diseases like Chikungunya, Dengue, Zika virus fever, Yellow Fever, West Nile Fever, Japanese Encephalitis, Tick-borne Encephalitis can also present with fever as a sign. Lymphatic filariasis can also present with fever as a sign.

Inflammatory conditions like Rheumatoid Arthritis, Systemic Lupus Erythematosus (Immunological), Inflammatory Bowel Disease can also present with fever. Endocrine disorders like Thyrotoxicosis can also present with fever.

Periarteritis Nodosa or Vasculitis can also present with fever. Thrombophlebitis can also present with fever. Bone infections like Osteomyelitis can also present with fever.

Drugs like antibiotics, antihistamines and drugs used to treat high blood pressure can also cause fever.

Unsterile instrumentation during surgical procedures can also be a etiology for presentation of fever.

Some types of cancer can present with fever as a complaint Eg- Carcinoma of Pancreas, Hepato-Cellular Carcinoma.

Hodgkin's Disease, Non-Hodgkin's Lymphoma & Leukaemia can also present with fever.

As such there is no concept of surgical fever but fever can occur in post-operative cases; as there are statistics suggesting 90% of people who have undergone surgery can present with this sign. Even sepsis can also present with fever.

In Respiratory conditions - Atelectasis & Pneumonia can be the post-operative causes of fever. Sometimes Pneumonia can be fatal especially with bacterial infections. Infectious Mononucleosis, Tuberculosis, Bronchitis are other conditions that can present with fever.

Urinary catheter used for draining urine in collecting bag can also play a role in development of fever.

Wound infection at surgical site can present with fever when there is affection of tissues or organs.

The other causes of fever can include Alcohol Withdrawal, Soft Tissue Infections, Abscesses & Acute Adrenocortical Insufficiency.

Prolonged Fever with unexplained weight loss can also be a manifestation of Bacterial Endocarditis.

The people with negative nitrogen balance can have tissue breakdown during prolonged fever or advanced chronic systemic illness.

Brain damage from fever doesn't occur unless the fever is very high $\sim 107.6^{\circ}\text{C}$ (42°C) as per the medical literature available.

Hence fever is a sign and accompaniment for most common conditions, complicated conditions and syndromes too.

Therapeutics of fever in homoeopathy include Aconite, Actea Racemosa, Ailanthus Glandulosa, Anthracinum, Apis Mellifica, Arnica, Arsenic, Aesculus, Aethusa, Agaricus, Baptisia, Belladonna, Bryonia, Cadmium, Cina, Cinchona, Colchicum, Crotalus, Echinacea, Eucalyptus, Eupatorium Perfoliatum, Ferrum phos, Gelsemium, Hepar sulph, Hyocyamus, Muriatic.ac, Nux Vomica, Phosphorus, Phosphoric.ac, Pyrogenum, Pulsatilla, Rhustox, Spiranthes Autumnalis, Stramonium, Urtica urens.



PUERPERAL PYREXIA AND HOMOEOPATHIC APPROACH

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Abstract

Puerperal pyrexia and sepsis are among the leading causes of preventable maternal morbidity and mortality not only in developing countries but also in developed countries as well. Most postpartum infections take place after hospital discharge which is usually 24 hours after delivery. The predisposing factors leading to the development of sepsis include home birth in unhygienic conditions, low socioeconomic conditions, poor nutrition, primiparity, anaemia, prolonged labor, multiple vaginal examinations in labor room, caesarian sections, retained placenta within the uterus and postpartum hemorrhage.

Introduction –Puerperal sepsis is a rise of temperature reaching 100.4°f or more on two separate occasions at 24 hours apart within first 10 days following delivery is called puerperal pyrexia.

Etiology of Puerperal pyrexia.

- Puerperal sepsis
- Urinary tract infections
- Mastitis, Breast complications
- Wound infections CS wound and episiotomy wound
- Pulmonary infections
- Septic pelvic thrombophlebitis
- Pharyngitis and gastroenteritis.

Predisposing factors for puerperal sepsis

The pathogenesis of vaginal flora may be influenced by certain factors

- 1.Cervicovaginal mucous membrane is damaged even in normal delivery
- 2.The uterine surface too, especially the placental site, is converted into an open wound by the cleavage of the decidua which take place during the third stage of labor
- 3.The blood clots present at the placental site are excellent media for the growth of bacteria.

Risk factors

Antepartum risk factors

Malnutrition and anaemia, Preterm labor, premature rupture of membrane, Immunocompromised (HIV), Prolonged rupture of membranes more than 18 hours and diabetes.

Intrapartum risk factors

Repeated vaginal examination, dehydration and ketoacidosis during labor, traumatic vaginal delivery, hemorrhage antepartum and postpartum, retained bits of placental tissue or membranes, prolonged labor, obstructed labor and caesarian delivery.

Causative factors

Causative organisms-

Aerobic – Group A beta haemolytic streptococcus and group B beta haemolytic streptococcus.,

Anaerobic- streptococcus, Pepto coccus, Bacteroides and Clostridia.

Mode of infection

- Source of infection may be endogenous where organisms are present in genital tract before delivery.
- Infection may be autogenous where organisms present elsewhere in the body and migrate to the genital organs.
- Infection may be exogenous where infection is contracted from sources outside the patient.

CLINICAL FEATURES

- Local infection
- Uterine infection
- Spreading infection

Local infection-

There is slight rise of temperature, generalised malaise or headache.

The local wound becomes red and swollen

Pus may form which leads to disruption of the wound

Uterine infection –

Mild- There is rise in temperature ($>100.4^{\circ}\text{F}$) and pulse rate (>90),

Lochial discharge becomes offensive and copious

The uterus is subinvolved and tender.

Severe- The onset is acute with high rise of temperature, often with chills and rigor.

Pulse rate is rapid, out of proportion to temperature.

Often there is breathlessness, coughs, abdominal pain and dysuria,

Lochia may be scanty and odourless

Uterus may be sub involuted, tender and softer. There may be associated wound infection.

Spreading infection

- Parametritis
- Pelvic peritonitis
- General peritonitis
- Thrombophlebitis
- Septicemia.

Investigations

- High vaginal and endocervical swab for culture in aerobic and anaerobic media.
- Clean catch midstream specimen of urine for analysis and culture including sensitivity test.
- Blood for total and differential count and haemoglobin estimation.
- Blood culture
- Pelvic ultrasound
- Xray chest
- Blood urea and electrolytes

Prophylaxis

- **Antenatal** – prophylaxis include improvement of nutritional status and eradication of the septic focus in the body.
- **Intranatal** - Full surgical asepsis during delivery, Screening for group B streptococcus in a high risk patient.
- Prophylactic use of antibiotics at the time caesarean section.
- Post partum – Prophylaxis includes aseptic precautions for at least 1 week, following delivery until the open wounds in the uterus, perineum and vagina are healed up.

Management

Isolation of the patient

Adequate fluid intake and calorie are maintained

Anaemia is corrected

An indwelling catheter is used to relieve any urine retention due to pelvic abscess.

A chart is maintained by recording pulse, respiration, temperature, lochial discharge and fluid intake and output.

Homoeopathic Approach

Rubrics

- **Murphy's Repertory**

Puerperal fever- ARS, BELL, BRY, CROT-H, VERAT-V

- **Kent's repertory**

Fever- Septic fever (Puerperal fever)- Arsenic, Arnica, Bryonia, Crot- h, Sulphur

- **BBCR repertory**

Puerperal -ACO, BELL, BRY, CHAMOMILLA, NUX V, PULS, RHUS T



HOMOEOPATHIC THERAPEUTICS FOR PUERPERAL PYREXIA

Aconite

Synovial fever, pulse hard and rapid, skin dry and hot, thirst intense for cold drinks, red and hot face, short breath, difficult and sighing respiration, lochia suppressed, mamma lax and empty sharp shooting pains through whole abdomen, which is distended and tender to the touch, restlessness of mind and body.

Apis Mellifica

Pelvic cellulitis, stinging thrusting pains, great tenderness over the uterine region with bearing down pains, absence of thirst, urine scanty, dyspnoea, great restlessness, tossing and turning without the least relief, high fever, pulse rapid and soft. Pungent heat of body while feet and hands are cold, patient feels stangely as if about to die. Lochia and milk suppressed.

Arsenic Album

Metritis in childbed, with signs of dissolution of blood. Burning, throbbing lancinating pains, great restlessness and anguish with fear of death, great prostration, the least effort exhausts her, sunken countenance sallow and livid complexion, nausea and vomiting, dizziness, headache, delirium, small, feeble, intermittent pulse, she wants more covering, wants to be wrapped up.

Baptisia

Puerperal fever with typhoid symptoms, foetid lochia with much prostration, distended abdomen, fulness, flatulence, rumbling, feels as if vomiting would relieve, sharp, shooting pains in bowels, urine alkaline, foetid and highly coloured.

Colocynthis

The disease is caused by violent chagrin, severe colicky pains, causing her to bend double, with great restlessness, feeling in the abdomen as if the intestines were being squeezed between stones, hot head, red face and glistening eyes.

MIASMATIC APPROACH TO FEVER

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Fever is an increase in body temperature above the normal circadian variation due to change in the thermoregulatory center located in the hypothalamus. Fever is a manifestation of the vital reaction and resistance (immune system) towards the disease by the organism. It is nature's way of protecting the organism by production of antibodies, antitoxins and represents the normal reaction and resistance of the vital energy.

Chills and rigors occur in most fevers due to sudden reset of thermostat to a higher temperature. Rigors are commonly seen with bacterial, rickettsial, protozoal, influenzal infections, sepsis, systemic infections like brucellosis, rat-bite fever, endocarditis, malaria, some malignancies and also in drug induced fevers. According to textbook of medicine, fever can be due to - Infections, inflammatory diseases, malignancies, immunizations and also drug induced. Fevers with spontaneous recovery are usually viral in origin. Fevers continuing for 2 to 3 weeks with investigations unrevealing the cause are fevers of unknown origin.

To know the miasmatic diagnosis of all these fevers, it is necessary to know Dr Hahnemann's classification of diseases. Dr Hahnemann has classified Dynamic diseases into acute and chronic depending on their nature. Acute diseases are further classified as individual, sporadic and epidemic. Individual acute febrile affections are due to exciting causes. These cause a transient explosion of latent psora which spontaneously returns to its dormant state if the disease is not too violent in nature. Most viral fevers come under this group. Epidemic fevers have fixed morbid process, ending in death or recovery within a moderate period of time with or without medicine. They are infectious attacking many people at a time with same cause. They are due to acute miasms or fixed miasms example measles, mumps, chikungunya, etc. Calamities of war and famine also cause epidemics of infectious fevers.

Fevers due to immunization with DPT vaccine, Covid-19 vaccine, Hepatitis A and B vaccine, MMR, polio vaccines, etc. are acute in nature lasting for a day or two. Chronic diseases are of two types- miasmatic and non miasmatic. Psora, sycosis, syphilis are chronic miasmatic diseases manifesting singly or in combination with each other. The Psora has characteristic itching, Syphilis ulcerates and destructs and Sycosis infiltrates and corrodes by its discharges. Miasmatic approach to fever depends on its cause, totality of symptoms i.e. the picture of the disease and the pathology.



- **Psoric Fever:** The face becomes very red, hot and shiny. Full bounding pulse. There will be aversion to sweets which they like normally. They crave acids of all kinds like lemonade, buttermilk, etc. they are better by warm and aggravated by cold. Intermittent fevers presenting as sporadic or epidemic or endemic are psoric in nature. The form, duration and type of fever vary like quotidian, tertian, quartan, quintan or every 7 days.
- **Tubercular Fever:** The face is pale with circumscribed redness on the cheekbones, paleness of the face in the morning. The pulse is small, thread like and rapid. There is desire for cold things. Tendency for suppuration and destruction. Patient is worse at night with increased sweat. Inflammatory fevers due to autoimmune disorders like Rheumatoid arthritis and SLE are tubercular in nature. So also fever due to tuberculosis and HIV infection.
- **Sycotic fever:** The pulse is soft, slow and easily compressible. Catarrhal affections worse in damp weather. Discharges yellowish green and acrid with characteristic fishbrine odour. Tendency for slow recovery. Stich abscess with fever is sycotic in nature.

Hay fever (seasonal allergies) or allergic rhinitis is a result of all three miasms. Fever due to Malignancies; and also inflammatory and infectious fevers can be psoric, sycotic, syphilitic or due to combination of all three miasms depending on underlying pathology and totality of symptoms.

Syphilis mainly affects the meninges, larynx and throat, eyes, the bones and periosteum. Psora has nervous affections, producing functional disturbances. Sycosis attacks the pelvic and sexual organs and also joints causing worst form of inflammation and infiltration, abscess, hypertrophy and cystic degeneration.

Drug fevers can be of shorter or longer duration depending on the duration of intake of allopathic drugs. These fevers and also the Snake bite (venom) fever are non miasmatic in nature.

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REPERTORIAL APPROACH TO FEVER

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INTRODUCTION:

Fever is an elevation of body temperature that exceeds the normal daily variation in body temperature. A fever can be a sign of several health conditions, which may or may not need treatment. Most common causes of fever are infections related to Respiratory, GIT, CNS, CVS, and Skin etc. Both the old and modern repertories have many rubrics related to different types of Fever which are helpful in the selection of an indicated remedy.

SL. NO	Symptoms	Rubrics	Remedies	Name of the Repertory
1	Fever alternating with chills	Fever alternating with chills	Am-m, Ars, Bapt, Bell, Bry, Calc, Cham, Chin, Cocc, Hep, Ign, Iod, Merc, Nux -v, Phos, Rhus-t, Tarent	Kent's Repertory
2	Fever coming in every Autumn	Autumnal	Ars, Bry, Calc, Colch, Eup-per, Nat-m, Nux-v, Rhus-t, Sep	
3	Fever with cold	Catarrhal fever	Acon, Ars, Bry, Hep, Merc, Rhus-t, Sabad	
4	Enteric Fever	Continued fever, Typhus, Typhoid	Ars, Arum-t, Bapt, Bry, Caps, Carb-v, Chin, Chlor, Colch, Gels, Hyos, Lach, Phos, Rhus-t	
5	Fever due to Measles	Exanthematic fevers, measles	Acon, Ant-c, Apis, Bry, Carb-v, Coff, Euphr, Gels, Phos, Puls, Rhus-t, Sulph,	
6	Fever with GI complaints	Gastric fever	Acon, Ant-c, Ant-t, Ars, Bry, Cham, Gels, Ip, Merc, Nux-v, Podo, Puls, Rhus-t, Sec, Verat	
7	Fever due to infections	Inflammatory/Septic	Acon, Bell, Bry, Cact, Colch, Gels, Lach, Merc, Phos, Puls, Rhus-t, Sulph	
8	Intermittent fevers	Intermittent, chronic	Ars, Ars-I, Calc, Calc-p, Ferr, Ferr-I, Iod, Kali-s, Lyco, Nat-m, Nat-s, Nit-ac, Phos, Psor, Pyrog, Sulph, Tarent, Tub	

SL. NO	Symptoms	Rubrics	Remedies	Name of the Repertory
9	Fever related to CNS	Cerebro-spinal fever	Apis, Arg-n, Bell, Cic, Cimic, Gels, Hell, Ign, Nat-m, Nat-s, Nux-v, Op, Phos, Rhus-t, Verat-v	Murphy's Repertory
10	Postpartum fever	Childbirth, Fever, after(Puerperal)	Acon, Apis, Arg-n, Arn, Bapt, Bry, Carbn-s, Cham, Coloc, Echi, Ferr, Hydr-ac, Kali-p, Lach, Lyc, Mur-ac, Nux-v, Puls, Pyrog, Rhus-t, Sulph	
11	Fever with rashes	Chickenpox infection	Ant-c, Ant-t, Bell, Carb-v, Led, Merc, Puls, Rhus-t, Sep, Sulph, Thuj	
12	Fever due to Cholera	Cholera Infection	Ars, Camph, Canth, Carb-v, Cupr, Cupr-acet, Cupr-ar, Grat, Hydr-ac, Ip, Laur, Op, Phos, Podo, Psor, Tab, Verat	
13	Dengue Fever	Dengue Fever	Acon, Bry, Eup-per, Rhus-t	Murphy's Repertory
14	Fever during Dentition	Dentition, during	Acon, Bell, Cham, Ferr-p, Gels, Rheum, Sil, Verat-v	
15	Fever after Injuries	Injuries, fever after	Acon, Apis, Arn, Ars, Bell-p, Calen, Chin, Coff, Ferr-p, Iod, Lach, Lyss, Nit-ac, Puls, Rhus-t, Staph, Sul-ac, Sulph	
16	Fever with joint pain	Rheumatic fever	Acon, Ant-t, Arn, Ars-s-v, Aur, Bell, Benz-ac, Bry, Cact, Cal-p, Cal-s, Caust, Colch, Dulc, Ferr-p, Iod, Kali-bi, Kalm, Lyco, Ruta, Rhus-t, Spig, Sulph	
17	Fever due to Streptococcus infection	Streptococcus infection	Ail, Arn, Ars, Bell, Strept, Sul-ac, X-ray	
18	Fever due to Staphylococcus infection	Staphylococcus infection	Ant-c, Ars, Bapt, Dulc, Echi, Hep, Iris, Kali-bi, Nit-ac, Ph-ac, Pyrog, Rhus-t, Sil	

FEVER

SL. NO	Symptoms	Rubrics	Remedies	Name of the Repertory
19	Fever due to Tuberculosis	Tuberculosis , miasm	Acet-ac, Agar, All-s, Ant-t, Ars, Bac, Bapt, Bar-m, Brom, Bry, Bufo, Calc, Calc-p, Calc-s, Dros, Dulc, Elaps, Ferr-l, Ferr-p, Iod, Kali-c, Kali-s, Lyco, Merc, Nat-m, Phos, Psor, Puls, Senec, Sil, Spong, Stann, Sulph, Ther, Tub, Zinc	BBCR
20	Fever after vaccination	Vaccination fever after	Acon, Ant-c, Apis, Bapt, Bell, Carc, Sil, Thuj	
21	Fever due to viral infection	Viral infection fever with	Acon, Ars, Bapt, Bell, Bry, Carc, Gels, Merc, Nat-m, Ph-ac, Rhus-t	
22	Fever due to Lactation	Milk (lactation) fever	Acon, Arn, Ars, Bry, Calc, Chin, Kali-c, Phos, Puls, Rhus-t, Sep, Sil	
23	Fever due to worm infections	Worm fever	Acon, Ars, Cic, Chin, Ferr, Graph, Ign, Merc, Nux-v, Puls, Sabad, Sil, Spig, Sulph	
24	Fever due to trauma	Traumatic fever	Acon, Arn, Bry, Carb-v, Lach, Nit-ac, Phos, Phos-ac, Puls, Rhus-t, Staph, Sulph, Sul-ac	Synthesis Repertory
25	Fever due to Hepato-biliary infections	Bilious	Acon, Bell, Bry, Cham, Coloc, Eup-per, Ign, Lyco, Mur-ac, Nat-s, Nux-v, Plat, Puls, Staph	
26	Fever in summer	Summer, hot season	Arn, Ars, Bell, Bry, Calc, Caps, Gels, Lach, Sulph	
27	Fever in winter		Calc, Carb-v, Chin, Nux-m, Puls, Rhus-t, Sulph, Verat	
28	Glandular fever	Glandular fever	Carc	Complete Repertory
29	Hayfever	Coryza fever with	Acon, All-c, Ars, Bell, Bry, Hepar, Iod, Merc, Nux-v, Seneg, Tarent	
30	Fever due to jaundice	Heat Jaundice with	Ars, Card-m, Nux-v, Podo	



THERAPEUTICS FOR FEVER

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Fever, also known as pyrexia, high temperature or high fever is the body's normal reaction to a variety of conditions, infections and the most common medical symptom.

Fever is the febrile response and defined as having a temperature above the normal range 98.6F (37C).

A normal body temperature is maintained by the hypothalamic thermoregulatory centre which balances the excess heat production derived from metabolic activity in muscle and the liver with heat dissipation from the skin and lungs.

According to studies of healthy individuals 18–40 years of age, the mean oral temperature is **36.8° ± 0.4°C (98.2° ± 0.7°F)**, with low levels at 6 A.M. and higher levels at 4–6 P.M.

The maximal normal oral temperature is 37.2°C (98.9°F) at 6 A.M. and 37.7°C (99.9°F) at 4 P.M.

Five main types of fever are:

Intermittent fever: The temperature is high but falls to normal (37.2 degree C or below) each day. This type of fever is seen in malaria.

Remittent fever: In this type of fever, body temperature fluctuates, though it falls, it never falls all the way back to normal. This type of fever is associated with infectious diseases such as infective endocarditis, rickettsia infections, brucellosis, among others.

Continuous fever: It is also called sustained fever. The fever is prolonged with little or no change in temperature over the course of the day. Temperature remains above normal throughout the course of 24 hours and does not fluctuate more than 1 degree Celsius in 24 hours. This type of fever occurs in lobar pneumonia, typhoid (step –ladder pattern, a stepwise increase in temperature with a high plateau) and urinary tract infection.

Hectic Fever: In this fever type, there are wide swings in temperature. Intermittent or remittent fever is considered hectic with a temperature difference of at least 1.4 degree Celsius between the highest and the lowest temperature. This fever pattern is indicative of an abscess or pyogenic infection such as pyelonephritis.

Relapsing Fever: This is a type of intermittent fever that comes up again after days or weeks of normal temperatures. With animal bites and diseases like malaria, this fever is common.

FEVER

Causes Some of the causes of fever in adults include viral infection (flu or a cold), bacterial infection, fungal infection, food poisoning, heat exhaustion, sunburn, inflammation and tumour.

Comorbid health conditions like asthma, diabetes, liver disease, kidney disease, rheumatoid arthritis and intake of certain medications for a longer duration may lead to serious febrile illness.

Symptoms

- Sweating, Chills, Headaches, Muscle ache, Poor appetite.
- Fatigue, Weakness
- Skin rashes, Sensitivity to light
- Difficult breathing, Vomiting
- Muscle cramps and abdominal pain
- Dehydration, Seizures.

HOMOEOPATHIC TREATMENT FOR FEVER

1. **Aconite** – For Fever with Restlessness and Anxiety

Aconite is the perfect remedy for the first stage of inflammatory fever. It is a natural remedy of great help when the fever is accompanied by extreme restlessness and anxiety. The patient feels an increased thirst for cold water and the body aches are intolerable. The use of medicine Aconite should always be considered when the fever has risen after sudden exposure to cold winds. There is extreme chill in the body, and the patient desires to be covered up always.

2. **Bryonia Alba** – For Fever with Body ache

Bryonia Alba is a natural medicine for patients in whom body aches predominate during fever along with chills. Body is cold to the touch along with chills. Such a person wants to lie down still to get relief and slight motion worsens his or her condition. There is increased thirst. Symptoms get worse from warmth, movement and touch but one feels better by lying on the painful side.

3. **Eupatorium Perfoliatum**

For Fever with Bone Pain. The character of fever is periodic (repeated at certain fixed intervals). The chill stage is accompanied by intense aching and bone pains. The patient shivers and shakes with agonising pain in the head and eyes. The character of pain is bruised and the patient feels as if beaten. It is a leading remedy for dengue fever and malaria.

4. **Gelsemium**

For Fever with Weakness. Gelsemium has been considered an excellent remedy for treatment of Influenza for long. It is very beneficial in fever cases where the patients suffer from weakness, dizziness and even the tendency to faint. There is an absence of thirst in most cases. Though it is a prominent medicine for influenza, in some cases, it can be used in the early stage of typhoid fever with great exhaustion, dullness and dizziness with the patient preferring to be covered.

5. **Rhus Tox** – For Fever with Extreme Body Ache

Rhus Tox is one of the medicines for persons who have fever with extreme body aches, leading to restlessness. Such a person wants to remain in motion to get relief. Rhus Tox is also the natural medicine for fever as a result of getting wet in rain. During fever, there is shivering all over the body, tongue becomes dry with stretching pain in body, along with mental and physical weakness.

6. Belladonna – For fever of inflammatory origin

Belladonna is one of the first remedies to be thought of in those cases where there is fever with pain in the throat, which is also sore, red and inflamed . During fever, the head becomes hot, but the feet are cold. Internally it feels cold but externally there is very strong burning heat.

7. Arsenic Album – For Fever With Marked Exhaustion

Arsenic album can be thought of in cases of typhoid and malaria fever. Periodicity is marked with body burning pains, weakness, restlessness, exhaustion and aggravation during night. The complaint gets worse by the slightest movement and feels better after applying heat. In the heat stage, there is an inclination to uncover, as there is dry heat with thirst. At the end of the fever stage, there is cold and clammy sweat. Sometimes along with fever, gastric symptoms also exist such as colic, nausea, loose stool with heaviness in the stomach.

8. Camphor:

If fever comes along with chilliness and the patient suffers from these symptoms in the early stage of fever as sensation of fever or coryza, watery nose and aggravation of the symptoms of fever by doing a little labour, Cold and scanty sweat is characteristic symptom of Camphor

9. Ipecac:

Intermittent fever: in beginning of irregular cases; with nausea, or from gastric disturbance; after abuse of, or suppression from quinine. Intermittent dyspepsia, every other day at same hour; fever, with persistent nausea. Over Sensitive to heat and cold. Adapted to cases where the gastric symptoms predominate. Tongue clean or slightly coated. In all diseases with constant and continual nausea. Nausea; with profuse saliva; vomiting of white, glairy mucus in large quantities, without relief; sleepy afterwards; Aggravation; periodically; from veal, moist warm wind, lying down.

10. Glonoine:

If fever comes because of sunstrokes and the patient suffers from severe pain and headache especially due to gas light.

11. Ferrum Phos:

If the patient has no symptoms of fever, this biochemical medicine should be given to the patient at regular intervals of 2-3 hours. Take this medicine until fever subsides completely.

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