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# Management of Common Cold in Public Health Center

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**A B S T R A C T**

Introduction. Common cold defines as an acute viral infection on the upper respiratory tract. The common cold virus can be transmitted directly through contact with an infected person, or indirectly through touching objects contaminated with the virus. Rhinoviruses are the most frequent cause of the common cold. In Indonesia, common cold is one of the most found cases in public health center. This article aimed to describe a case of common cold in public health center and how to properly manage the disease from preventive into rehabilitative therapies.

Case Presentation. A 10 year- old girl came to the Public Health Center children's clinic with complaint of fever since ± 3 days ago. The fever was not high, not accompanied by chills and sweating. Previously, the patient came home from school and played in the rain. Apart from that, the patient also had a cough since 2 days ago, with little phlegm, white and not thick. Patient had a cold since 2 days ago, snot was runny and had always been flowing out since 2 days ago. The management of this patient should be started with preventive therapy, followed by promotive, curative and rehabilitative therapies.

Conclusion. Common cold is one of the cases that is often found in public health centers, especially in children. If comprehensive treatments are not given, starting from promotive to rehabilitative therapy, patients can have complications due to the common cold.

Keywords: Common Cold, acute viral infection, public health center, complication

## 1. Introduction

Acute Respiratory Infection (ARI) is also called "Common Cold" or Acute Nasopharyngitis. Common Cold is a disease that involves the respiratory tract organs, nose, sinuses, pharynx or larynx. Common Cold is the most common childhood infectious condition, but its significance depends primarily on the relative frequency of complications that occur. In children the syndrome is more widespread than in adults, often involving the paranasal sinuses and middle ear as well as the nasopharynx. The disease is caused by more than 200 serologically distinct viral agents. 75% of these diseases are caused by viruses. The main agent is rhinovirus, which causes more than a third of all cold cases; coronavirus causes about 10%. The infectivity period lasts from several hours before symptoms appear until 1-2 days after the disease appears. Group A streptococcus is the main bacteria that causes acute nasopharyngitis. Corynebacterium diphteriae, Mycoplasma pneumonia, Neisseria meningitides, and N. gonorrhea are also primary infectious agents. Hemophilus influenza, Streptococcus pneumonia, Moraxell catarrhalis, and Staphylococcus aureus can cause secondary infections in the upper respiratory tract tissue and cause complications in the sinuses, ears, mastoids, lymph nodes and lungs. M. pneumoniae infection can be localized in the nasopharynx and in this case it is difficult to distinguish it from viral nasopharyngitis. Predisposing factors for the common cold can include fatigue, poor nutrition, anemia and cold. Although age is not a factor that determines susceptibility, purulent secondary infections are more common in young children. This disease is often suffered during the change of seasons. In Indonesia, common cold is one of the most found cases in public health center. Some of the younger or older patients in Indonesia develop complications such as bronchopneumonia or bronchitis after getting common cold.1,2

World Health Organization (2020) stated in the United States that The highest cases of common cold occurred in April and September 2020 in areas with temperate climate. Prevalence of common cold in preschool age children is 3–8 cases per year with incidence increased among children in child care facilities. In groups of adolescents and adults in the United States, average prevalence of common cold is 2–4 cases per year. In Australia, common

cold was reported to be the reason in 11% in general practice consultation. While at Norway, a cross-sectional study in children 4-5 years old reported that as many as 48% of children experience common cold more than 2 times in a year.3 Based on the Riset Kesehatan Dasar (2018) in Indonesia, the prevalence of common cold in Indonesia is around 25.0% and 13.8% of cases after being diagnosed by a doctor. The overall prevalence is 1,017,290 cases. Common cold disease in toddlers in Indonesia is estimated at 3 to 6 times per year, this means that a toddler is easily or susceptible to coughing and cold attacks 3 to 6 times a year. Based on the Basic Health Researc or RISKESDAS data in 2020, the prevalence of common cold in Indonesia is around 25.0% and 13.8% of cases after being diagnosed by a doctor. The overall prevalence is 1,017,290 cases. Common cold disease in toddlers in Indonesia is estimated at 3 to 6 times per year, this means that a toddler is easily or susceptible to coughing and cold attacks 3 to 6 times a year.1

Susceptibility to agents that cause acute nasopharyngitis or Common Cold is universal, but for reasons that are poorly understood this susceptibility varies in the same person over time. Although infections occur throughout the year, in the Northern Hemisphere there are peaks in September around the time school starts, at the end of January, and near the end of April. Children suffer an average of five to eight infections a year, with the highest rates occurring during the first 2 years of life. The frequency of the Common Cold is directly proportional to the exposure rate, and in kindergartens and day care centers it may constitute a true epidemic. Susceptibility may increase due to poor nutrition, and purulent complications increase with malnutrition. The first change in the common cold is edema and vasodilation of blood vessels in the submucosa. A mononuclear cell infiltrate accompanies, which within 1-2 days becomes polymorphonuclear. Structural and functional changes in cilia result in impaired mucus clearance. In moderate to severe infections, the superficial epithelium peels off. Epithelial cell regeneration only occurs after passing the acute stage. There is a large amount of mucus production, at first thin, then thickened and usually purulent. There may also be anatomical involvement of the upper respiratory tract, including occlusion and abnormalities of the sinus cavities.4,5

The clinical symptoms of Common Cold are more severe in young children than in older children and adults. In general, children aged 3 months to 3 years suffer from fever early in the course of infection, sometimes several hours before localized signs appear. Younger babies usually don't have a fever, and older children may have a mild fever. Purulent complications occur more frequently and are more severe at younger ages. Persistent sinusitis can occur at any age.3

Initial manifestations in babies older than 3 months are sudden fever, irritability, restlessness and sneezing. Nasal mucus begins to come out within a few hours, soon causing nasal obstruction, which can interfere with feeding; In young infants who have a greater reliance on nasal breathing, signs of moderate respiratory distress may occur. During the first 2-3 days the tympanic membrane usually becomes congested and fluid can be found behind the membrane, which can then result in purulent otitis media or not. A small percentage of babies may vomit, and some sufferers suffer from diarrhea. The febrile phase lasts from several hours to 3 days; fever may recur with purulent complications.4,5

In older children, the initial symptoms are dryness and irritation in the nose and, not rarely, in the pharynx. These symptoms within a few hours are accompanied by sneezing, chills, muscle aches, runny nose and sometimes coughing. Headache, lethargy, anorexia, and low-grade fever, may be present. Within 1 day the secretions usually become thicker and eventually become purulent. This fluid is irritating, especially during the purulent phase. Nasal obstruction causes mouth breathing, and this, through drying of the mucous membrane of the throat, increases the pain. In most cases, the acute phase lasts 2-4 days.3

Complications of the common cold are the result of bacterial invasion of the paranasal sinuses and other parts of the respiratory tract. Cervical lymph nodes may also become involved and sometimes suppurate. Mastoiditis, peritonsillar cellulitis, sinusitis, or periorbital cellulitis may occur. The most frequent complication is otitis media, which is found in up to 25 percent of small babies. Although this complication may occur early in the course of a cold, it usually appears after the acute phase of nasopharyngitis. Thus otitis media should be suspected if fever recurs. Most upper respiratory tract viral infections also involve the lower respiratory tract; and in many cases, lung function decreases even though lower respiratory tract symptoms are inconspicuous or absent. Conversely, laryngotracheobronchitis, bronchiolitis, or pneumonia may develop during the course of acute nasopharyngitis. Viral nasopharyngitis is also a frequent trigger of asthma symptoms in children with reactive respiratory tract.6

There is no vaccine as an effective prevention for the common cold. Gammaglobulin or vitamin C do not reduce the frequency or severity of infections, and their use is not recommended. Because the common cold is everywhere, it is impossible to isolate children from this condition. However, because complications in very young babies can be relatively serious, some effort should be made to protect the baby from contact with potentially infected people. Spread of infection is by aerosol (coughing, sneezing) or direct contact with infected material (hands).7 This article aimed to describe a case of common cold in public health center and how to properly manage the disease from preventive into rehabilitative therapies.

## 2. Case Presentation

A 10 year-old girl came to the Public Health Center children's clinic with complaint of fever since ± 3 days ago. The fever was not high, not accompanied by chills and sweating. Previously, the patient came home from school and played in the rain. Apart from that, the patient also had a cough since tw days ago, with little phlegm, white and not thick. Patient had a cold since two days ago, snot was runny and had always been flowing out since 2 days ago. There was no pain when swallowing. There was no shortness of breath. There was no diarrhea. Nausea and vomiting were absent. However, the patient's appetite decreased. Urination and defecation were regular in quantity and color. Currently, the patient's mother and older sister who live at the same home with the patient were suffering from flu and cough.

The results of the physical examination found the patient had a mild fever. Apart from temperature checks, other physical examinations from head to toe were within normal limits. Supporting examinations were not carried out on the patient. The management of this patient should be started with preventive therapy, namely avoiding patient contact with people who have the potential to contract infection, avoiding playing in the rain, and wearing a jacket if traveling in cold weather, especially at night, but as far as possible avoid going out at night. Next, increased the body's endurance by getting enough sleep and rest, consuming nutritious foods that contain high levels of carbohydrates, protein and vitamins, and avoiding things that cause physical fatigue in patients. The second therapy was promotive therapy by keeping the environment clean, making it a habit to adopt a healthy lifestyle such as sleeping regularly and consuming balanced nutritious food in the family. If a family member has an acute respiratory infection such as a cold or cough, it is best to wear a mask so that the disease is not transmitted to other family members. The next therapy was curative therapy by getting enough rest and drinking lots of water. Next, the patient was compressed with warm water if she had a fever. Further therapy was medication therapy in the form of Paracetamol 500 mg 3x1/2 tablets orally, Cetirizine 10 mg 1x1/2 tablets orally, Ambroxol 30 mg 3x1/2 tablets orally. Next, Vitamin B complex 1x1 tablet was also

given. If there were danger signs such as a fever that was too high, convulsions, the patient was unconscious, vomitted what she ate immediately or did not want to eat at all, immediately take her to the nearest hospital emergency room.

## 3. Discussion

A 10 year old female patient came to Public Health Center children's clinic, with the main complaint of fever since ± 3 days ago. The fever is not high, there are no chills and no sweating. Previously, the patient came home from school to play in the rain. The patient's other complaints include coughing since 2 days ago, little phlegm, phlegm that is white and not thick, a cold since 2 days ago, where the snot is runny and always flows out. Apart from that, the patient's appetite also decreases. The patient's mother and older sister also suffered from flu and cough, but did not wear masks at home or when in contact with the patient. Based on physical examination, it was found that the child had a fever with a temperature of 37.9 C. Based on the history and physical examination, it was confirmed that the patient was suffering from an acute upper respiratory tract infection (ARI).

In older children (over 6 years of age), the initial symptoms are dryness and irritation in the nose and, not rarely, in the pharynx. These symptoms within a few hours are accompanied by sneezing, chills, muscle aches, runny nose and sometimes coughing. Headache, lethargy, anorexia, and low-grade fever, may be present. Within 1 day the secretions usually become thicker and eventually become purulent. This fluid is irritating, especially during the purulent phase. Nasal obstruction causes mouth breathing, and this, through drying of the mucous membrane of the throat, increases the pain. In most cases, the acute phase lasts 2-4 days. In this patient, the symptoms found were cough, runny nose, anorexia and fever, which had been experienced for the past 3 days. These symptoms correspond to the clinical symptoms of the common cold or ARI, which are mostly caused by viruses.

There is no specific medical therapy for common cold, only symptomatic, namely given expectorants to treat coughs; if necessary, sedative to calm and antipyretic to reduce fever. This patient was given paracetamol as an antipyretic against the patient's fever at a dose of 50-100 mg/kg/day divided into 3 doses, ambroxol as an expectorant mucolytic at a dose of 1.2-1.5 mg/kg/day divided into 3 doses, and cetirizine as an antihistamine at a dose of 0, 25 mg/kgbb/day. Patients are also given appetite enhancing supplements, namely vitamin B complex once a day. The patient's main therapy is non-medical therapy, because ARI is most often caused by rhinovirus, which can be cured by the patient's own immune system (self-limited disease). Preventive therapy for these patients includes avoiding patient contact with people who have the potential for infection, avoiding playing in the rain and wearing a jacket if traveling in cold weather and at night, but as far as possible avoiding going out at night. Increase the body's endurance by getting enough sleep and rest, as well as consuming nutritious foods that contain high levels of carbohydrates, protein and vitamins, avoiding things that cause physical fatigue in patients. Promotive therapies such as keeping the environment clean, getting used to healthy lifestyles such as sleeping regularly and consuming balanced nutritious food in the family, and if a family member is affected by an ISPA such as flu or cough, it is best to wear a mask so that the disease is not transmitted to other family members.8

There is no specific therapy for the common cold, only symptomatic, namely giving expectorants to treat coughs; sedativum to calm and antipyretic to reduce fever. Nasal obstruction in babies is very difficult to treat. Sucking mucus from the nose with various tools is ineffective and usually dangerous. The best way to channel secretions is to position the baby in a "prone position." If there is a secondary infection, antibiotics should be given.

Bed rest is usually recommended, but there is no evidence that this shortens the course of the disease or affects the outcome. Acetaminophen or ibuprofen is usually helpful in reducing irritability, pain and malaise during the first and second days of infection, but excessive use should be avoided. Aspirin given to children infected with influenza viruses increases the risk of Reye's syndrome and is not recommended for children who have respiratory symptoms.9

Most emergencies are due to nasal obstruction and efforts should be made to relieve it if it interferes with sleep or drinking or eating. Nasal administration of medications may be an effective method for relieving nasal obstruction. In babies, instilling sterile saline can help with the physical removal of excessive mucus. Phenylephrine (0.125-0.25%) is widely used in the United States. Longer-acting potent nasal drops, although useful in adults, tend to be irritating and sometimes hyperexcitative or sedative in infants. Nasal drops in oily solutions should be avoided as these drops are easily aspirated. Adding antibiotics, corticosteroids, or antihistamines to nasal drops increases the price but adds nothing to their effectiveness.3

Nasal drops are best given 15-20 minutes before meals and at bedtime. While the child is in a supine position with the neck extended, 1-2 drops are inserted into each nostril. Because this method often causes shrinkage of the anterior mucous membrane only, 1-2 drops can be added 5-10 minutes later. Instillation of nasal decongestants with cotton-tipped applicators is not recommended. Orally administered decongestants are also widely used to contract thickened nasal mucosa and to relieve obstruction. Pseudoephedrine reduces nasal resistance in older children and adults suffering from upper respiratory tract infections; studies in infants and young children have not been reported. Most children with acute nasopharyngitis have a decrease in appetite, but forcing them to eat a dish is useless. The fluids the child desires should be given at frequent intervals. Temporary constipation is common but does not require treatment because this sign disappears quickly when the child returns to eating normally.10

## 4. Conclusion

Common cold is one of the cases that is often found in public health centers, especially in children. If comprehensive treatments are not given, such as promotive, preventive, curative (medicine and non-medicine), until rehabilitative therapy, patients can have complications due to the common cold.

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