**6.3 communicable disease during Toddlerhood period**

**Measles**

**Definition:**

Measles is highly contagious disease of childhood caused by RNA virus of genous mobility in the family of paramyxo virus family. it is transmitted by droplet infection (respiratory tract or eye) and characterized by fever and catarrhal symptoms of the upper respiratory tract (coryza, cough) followed by a typical rash.

Measles is highly infectious during the prodromal period and at the time of eruption. the period of communicability is approximately 4 days before and days after the appearance of rash. One attack of infection gives the lifelong immunity.

**Mode of transmission**

It is mainly transmission mainly by droplet infections and droplet nuclei. Portal entry is the respiratory tract and sometimes through conjunctiva. It can spread directly by air born route orby indirect contact with fomites.

**Incubation period:** 10-14 days

**Risk factors**

* Age – children between 6 months and 3 years of age in developing countries and older children usually over 5 years in developed countries
* Sex– incidence is equal in both sexes.
* Seasons – It is common in winter and early spring seasons.
* Nutritional-common in malnourished child.

**Clinical manifestation:**

There are three stages in natural history of measles. These are:

1. Prodromal (catarrhal) or pre-eruptive stage: it begins 10 days after infection and last for 3-5 days. It is characterized by fever, coryza with sneezing and nasal discharge, brassy cough, and redness of eyes, lacrimation and often photophobia. the important characteristics of this stage is appearance of kolpik’s spot, small bluish white spot on a red base, smaller than the head of pin on the buccal mucosa opposite the first and second molars. The spots usually disappear a day or two days after a rash appears.
2. Eruptive stages: this phase is characterized by a typical dusky-red, macular or maculo-papular rash. It begins behind the ears and spreads rapidly in a few hours over the face and neck it last for 4-7 days. The rashes fading from 3rd to 4th day in the same order of appearance leaving the brownish discoloration which may persists for 2 months or more.
3. Post measles stages/ convalescent stage: this is the period of disappearance of constitutional symptoms, fever and rash. The child may remain weak for several days. May be failure to recover and a gradual deterioration into chronic illness due to increase susceptibility to other bacterial and viral infection, nutritional and metabolic effects and tissue destructive effects of the virus.

**Diagnosis:**

* History taking
* Physical examination

- typical rashes and kolpik’s spots

* Blood examination;

-routine blood examination and serological test

-ELISA test to detech the presence of measles antibody

**Management:** There is no specific treatment for measles: treatment is supportive and symptomatic.

* Symptomatic treatment is done with antipyretic, antihistaminic, cough sedatives, vasoconstrictor nasal drops and vitamin ‘A’ supplementation.
* Isolate to prevent further spread of the virus.
* Nutritional support to reduce the risk of malnutrition.
* Breast feeding should be encouraged.
* ORS should be given to prevent dehydration.
* Antibiotics may be given in suspected bacterial infections.
* All cases of measles are given vitamin ‘A’ immediately on diagnosis and repeated the next day. if the child has clinical signs of vitamin ‘A’ deficiency (such as bitot’s spots) a third dose should be given 2-4 weeks later.

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| --- | --- | --- |
| Dose of Vitamin ‘A’ | | |
| Age | Immediately on diagnosis | Next day |
| 0-6 months | 50000 IU | 50000 IU |
| 6-11 months | 100000IU | 100000 IU |
| ≥12months | 200000IU | 200000 IU |

**Management (based on IMNCI guideline -2071, revised on 2073)**

* Isolate the patient for 10 days (if possible), to prevent the further spread of the infection.
* Provide small frequent feeds, with added vegetable oil or sugar: continue breastfeeding to infant.
* Keep the patient warm.

**Treat the symptoms:**

* Fever, throat pain: paracetamol, ibuprofen
* Cough with solid mucus: drink plenty of hot water (with honey, ginger, tulsi, if available), steam inhalation
* Wheezing: salbutamol
* Blocked nose: nose drops with N/S or salt in boiled water.
* Severe itching and scratching: calamine lotion, consider chlorpheniramine, cetirizine
* Stomatitis: dilute povidone solution (half a spoon in one glass) for mouth gargles.
* Mouth ulcers: gentian violet or nystatin for a total of 5 days.
* Diarrhea; ORS and zinc
* Conjunctivitis: clean with sterile N/S or boiled water, give antibiotic eye drops/ointment (ciprofloxacin, tetracycline)
* Treat all infected children with ‘vitamin A’.
* Counselling
* Follow up
* Referral situations:
* if the signs of complications present
* inability to drink
* child below 6 months of age with suspected measles.

**Nursing management:**

* isolation, rest, calm and quite environment.
* Adequate fluid and nutritious diet
* Trim fingernails short, daily bath
* Clean nasal and mouth secretion, eye care.
* Careful observation (features and complication)

**Prevention:**

* Measles vaccine at 9 and 15 months

**Possible complications:**

* GI system: diarrhea in 20-40% of cases, stomatitis, enteritis
* Respiratory: pneumonia
* Neurological complication: febrile convulsion, brain abscess
* Other: keratitis, myocarditis, malnutrition corneal ulcer secondary to vitamin A deficiency

**Mumps**

**Introduction:**

Mumps is an infectious viral disease characterized by acute onset, unilateral or bilateral self-limiting swelling of the one or more of salivary glands, typically the parotid glands.

It is caused by myxovirus paroditis, a RNA virus which belongs to paramyxoviridae family.one time attack of infection gives lifelong immunity. Usually, it is a mild symptom rarely last more than one week, but it can cause post viral fatigue up to 6 weeks. Human are only natural hosts for mumps viral infection.

**Mode of transmission:** It is transmitted via droplet infection or by direct contact with infected cases.

**Incubation period:** 2-4 weeks (usually 18 days). Period of maximum infectivity being 2 days prior to 5 days after the parotid swelling.

**Pathophysiology:**

The virus enters through the nose or mouth.

Proliferates in the parotid glands and the respiratory mucosa.

Produce viremia

Virus is localized in the salivary glands (mainly the parotid) and CNS.

Appear clinical symptoms and affect testes, pancreas, ovaries, and prostate.

**Clinical manifestation:**

* Fever, headache, malaise, anorexia, sore throat
* Pain and swelling in one or both the parotid gland on the affected side prior to onset of swelling.
* Pain and stiffness on opening the mouth before the swelling of the gland.
* May develop abdominal pain or pain in testicles.
* Aseptic meningitis, encephalitis, auditory nerve damage, facial palsy etc.

**Diagnostic evaluation:**

* History taking (illness and presence of symptoms)
* Physical examinations: swelling of the gland
* Elevation of serum amylase
* Serology or virus culture
* Buccal swab for virus detection
* Saliva, blood, urine and other infected tissues
* Cerebrospinal fluid: high pressure, raised protein and cells (mostly monocytes)

**Management:**

There is no specific antiviral therapy. Treatment is usually supportive.

* Provide complete bed rest.
* Isolate until parotid swelling subsides.
* Provide paracetamol for pain and fever.
* Provide rest and plenty of fluid.
* Adjust diet according to the patient’s ability to chew.
* Treat orchitis with local support and bed rest.
* Administer steroids to relief pain and swelling of orchitis.
* Avoid sour foods such as citrus fruits or juice which stimulate saliva production.
* Counsel about signs of complication (headache, drowsiness, pain in abdomen or testicles)
* Refer if any signs of meningitis, severe abdominal pain (pancreatitis), deafness occur.

**Preventive measures:**

* Active immunity in the form of MMR (mumps, measles, rubella), but this is currently not included in Nepal’s EPI schedule.
* Isolate the affected child.
* Disinfect articles and surveillance of contacts as control measure.

**Complication:**

* Aseptic meningitis (more common in children)
* Orchitis and epididymitis
* Oophoritis (in female adolescents)
* Mumps in early pregnancy may lead to miscarriage
* Myocarditis, pericarditis, thyroiditis, pancreatitis.

**Chickenpox (varicella)**

**Definition:**

Chickenpox (varicella) is a viral illness characterized by a very red rash and is one of the most common infectious diseases of childhood. It is very rare to have the chickenpox infection more than once. varicella zoster virus belongs from family of herpes virus causes the chickenpox infection.

**Source of infection:**

* saliva
* coughing
* sneezing
* contact with fluid from the blisters
* direct contact with lesion

**Incubation period:** 10-21 days

**Mode of transmission:**

It is transmitted by person to person by droplet nuclei or by direct contact with chicken pox lesion.

Portal entry of the virus is the upper respiratory tract or the conjunctiva.

Virus can cross the placental barrier and infect the fetus,

**Risk factors:**

* recent contact with an infected person
* under 12 years of age
* immunized compromised condition
* spend time in a school or child care facility

**pathology**

* initially the lesion begins as maculae
* quickly change into papules
* vesicles with scab and crust formation
* the lesions may be present in the esophagus, pancreases, liver, genitourinary tract, lymph nodes, conjunctivae.

**Symptoms**

**Pre-eruptive stage:** The non-rash symptoms may last a few days and include fever (38-39 degree), malaise, headache, loss of appetite.

**Eruptive stage:** one or two days after the symptoms appear, the classic rash will begin to develop. the rash goes through three phages before recover. These include:

* develop red or pink bumps all over body.
* The bumps become blister filled with fluid that leaks.
* The bumps become crusty, scab over, and begin to heal.

**Following condition need medical attention without delaying if:**

* The rash spread to eyes.
* The rash is very red, tender, and warm (signs of a secondary bacterial infection).
* The rash is accompanied by dizziness or shortness of breath.

**Diagnostic evaluation:**

* History taking
* Physical examination (blisters on the child’s body)
* Lab tests can confirm the cause of the blister i.e. virus culture

**Treatment:**

Treatment and management should be focused on relief symptom and promote comfort.

* Antihistamine medications or topical ointments to relieve itching.
* Taking lukewarm baths.
* Applying unscented lotion
* Wearing lightweight, soft clothing
* Antiviral drugs acyclovir helps by slowing down viral activity.
* Immunoglobulin may be given to exposed children.
* Antibiotics in cases of secondary bacterial infection.

**Prevention**

**Vaccination:** Prevents 98% of people who receive the two recommended dose.

* Child should get first dose when they are between 12 and 15 months of age. children get a of age. Booster between 4 and 6 years.
* Older children and adult who haven’t been vaccinated or exposed may receive catch up doses of the vaccine.
* Avoid the virus by limiting contact with infected people.
* Case isolation.

**Complication :**

* Pneumonia or bacterial infection of the skin, joint, or bone, cellulitis, encephalitis, acute cerebral ataxia, Reye syndrome, hepatitis, thrombocytopenia, sepsis, abscess etc.

**Summary:**

**Assignment**

1.Write short note on chicken pox.

**Post test**

**Objective questions:**

1. Portal entry of the virus is the \_\_\_\_\_\_\_\_\_\_\_\_\_.
2. The incubation period of chickenpox is \_\_\_\_\_\_\_\_\_\_.

**True and False:**

1. It is transmitted by person to person by droplet nuclei or by direct contact with chicken pox lesion\_\_\_\_\_.
2. Vaccine can prevent 70% of people who receive the two recommended dose. \_\_\_\_\_\_ .

**Multiple choice questions:**

1. Prevention of chickenpox includes:
2. isolation
3. immunization
4. limit contact
5. All of the above
6. For the prevention of disease first dose of vaccine should be given at
7. Between 10 months and 12 months
8. Between 9 months and 12 months
9. Between 9 months and 15 months
10. Between 12 months and 15 months

**Summary:**

**Post test**

**Objective questions:**

1. Incubation period of mumps is\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Mode of transmission of mumps is \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. The stage begins 10 days after infection and last for 3-5 days is \_\_\_\_\_\_\_\_\_\_\_\_\_.
4. The period of disappearance of constitutional symptoms is \_\_\_\_\_\_\_\_\_\_.

**True and False:**

1. Human are only natural hosts for mumps viral infection\_\_\_\_.
2. It is only transmitted via droplet infection\_\_\_\_.
3. The patient should isolate for 10 days (if possible), to prevent the further spread of the infection\_\_\_\_\_.
4. The dose of vitamin A for 6 months of age is 100000 IU \_\_\_\_ .

**Multiple choice questions:**

1. Infected child should:
2. Isolate
3. Provide plenty of fluid
4. Avoid sour foods
5. All of the above
6. vaccine for the prevention of Mumps is
7. OPV vaccine
8. Rota vaccine
9. PCV
10. MMR
11. Management of diarrhea includes:
12. isolation
13. frequent and small feeding
14. Continued breast feeding
15. All of the above
16. For the prevention of disease vaccine should be given at
17. 10 months and 12 months
18. 9 months and 12 months
19. 9 months and 15 months
20. 12 months and 15 months

**Assignment:**

1. Write short note about mumps.
2. Explain the management of measles according to CBIMNCI.
3. Write short note on chi