

Medications				
Medication	Pharmacological	Therapeutic	Reason for Prescription	Nursing Assessment
Albuterol	Adrenergic (Jones & Bartlett, 2021)	Bronchodilator (Jones & Bartlett, 2021)	To dilate the patient's airways to improve ventilation and decrease work to breathe (Jones & Bartlett, 2021).	Know if the patient has a history of cardiac disorders, diabetes mellitus, hypertension, hyperthyroidism, or seizures (Jones & Bartlett, 2021).
Acetaminophen	Non salicylate, para-aminophenol derivative (Jones & Bartlett, 2021)	Antipyretic, nonopioid analgesic (Jones & Bartlett, 2021)	To reduce the patient's fever and relieve pain (Jones & Bartlett, 2021).	Obtain liver and kidney labs to monitor those functions during medication use (Jones & Bartlett, 2021).
Prednisolone	Glucocorticoid (Jones & Bartlett, 2021)	Immuno-suppressant (Jones & Bartlett, 2021)	To reduce the inflammation of the airways caused by the respiratory virus (Jones & Bartlett, 2021).	Ensure the patient doesn't have active TB before administering (Jones & Bartlett, 2021).
Valganciclovir	Purine nucleoside (Valcyte, 2022)	Antiviral (Valcyte, 2022)	To treat the patient's symptoms from congenital cytomegalo virus (Valcyte, 2022).	An absolute neutrophil count should be obtained to ensure it is not below 500 cells/ μ L (Valcyte, 2022).

Demographic Data	
Admitting diagnosis: Human rhinovirus/enterovirus	Psychosocial
Age of client: 16 weeks	Developmental Stage:
Sex: Female	Trust vs. Mistrust
Weight in kgs: 5.6 kg	Cognitive Development Stage:
Allergies: No known allergies	Sensorimotor
Date of admission: 5/31/22	

Admission History

The patient presented to the Emergency Department on 5/31/22 with a cough and increased work breathing with retractions seen in the ribs and abdomen after one day. The father said "We tried suctioning, but it wasn't helping. She has been breathing over 60 breathes per minute." The mother reported congestion and decreased oral intake over the past day. The ED did a respiratory pathogen panel, and the patient was put on 5 L/min high flow oxygen (O2) via cannula. The patient was then increase to 7 L/min and then 15 L/min of O2 via cannula in the pediatric intensive care unit. The patient exhibited a prolonged expiratory phase and was put on a continuous albuterol nebulizer and a nasogastric tube was inserted to feed and administer prednisolone to the infant.

Pathophysiology

Disease process: Rhinovirus (RV) is highly contagious and is transmitted via exposure to respiratory droplets, direct contact with an infected person, or contaminated surfaces. RV is what causes the "common cold" and can cause lower respiratory tract infections like acute bronchiolitis, this patient's diagnosis (Biagi et al., 2020). The rhinovirus will infect the epithelial cells lining the small airways which causes excessive mucus production, bronchospasms, air trapping, and obstruction of the bronchioles (Karampatsas et al., 2019). All of this makes the airways small and obstructs airflow to the lungs making it harder for the patient to breathe. Decreased gas exchange leads to hypoxia and low O2 perfusion to the tissues in the body and brain.

S/S of disease: Rhinorrhea, fever, cough, wheezes, crackles, respiratory rate over 60 breathes/minute, chest wall retractions, apnea, SpO2 lower than 92%, central cyanosis, poor oral fluid intake, and inability/indifference in eating (Biagi et al., 2020). This patient presented with rhinorrhea, cough, wheezes during auscultation, high respiratory rate, chest wall retractions, and decreased oral intake.

Method of Diagnosis: Mucus culture/swab or based on the patient's signs and symptoms. This patient had a nasal swab to diagnosis the causative organism (Karampatsas et al., 2019).

Treatment of disease: High flow supplemental O2 via nasal cannula, small and frequent feedings, NG feeding if fluid intake isn't maintained, nasal suctioning, continuous positive airway pressure, endotracheal intubation, chest physiotherapy, bronchodilators, and glucocorticoids. The patient is on a bronchodilator, glucocorticoid, continuous NG feeding, and high flow supplemental O2 via nasal cannula (Karampatsas et al., 2019).

Relevant Lab Values/Diagnostics

Positive rhino/enterovirus nasal swab

Medical History

Previous Medical History: Congenital cytomegalovirus (2/8/22), hip dysplasia (2/8/22), and total hearing loss bilaterally (2/8/22).

Prior Hospitalizations: N/A

Chronic Medical Issues: Congenital cytomegalovirus and total hearing loss bilaterally.

Social needs: Psychological need to recover from the illness.

Active Orders

- 0 Continuous NG feeding at 30 mL/hour of breast milk
 - Maintain proper nutrition and hydration
- 0 Contact and droplet precautions
 - Prevent the spread of the rhinovirus to others
- 0 No pregnant caretakers or visitors
 - Prevent infecting an expecting parent and fetus with congenital cytomegalovirus
- 0 Vital signs every hour
 - Monitor for any positive or negative changes in the patient's status, especially respiratory status
- 0 15 L/min of 30% concentration of O2 via cannula
 - To maintain the patient's SaO2 above 92% and ensure proper O2 perfusion to the tissues
- 0 Intake and output every 2 hours
 - To ensure proper hydration and nutrition

Assessment

General	Integument	HEENT	Cardiovascular	Respiratory	Genitourinary	Gastrointestinal	Musculoskeletal	Neurological	Most recent VS (highlight if abnormal)	Pain and Pain Scale Used
<p>The patient recognizes parents, responds to pain, but doesn't respond to sound due to hearing loss bilaterally (A&O x3). The patient is asleep and well groomed. She appears to be a healthy weight, size for her age.</p>	<p>The patient's skin color is normal for ethnicity. Skin is warm, dry, and intact with elastic turgor. No bruises, rashes, ulcers, or wounds. There are no drains present.</p>	<p>Patient's head is normocephalic with the trachea midline. Back fontanel feels firm and flat, and the front fontanel was a little sunken, most likely due to dehydration. Ears are symmetrical with no visible drainage or cerumen. Patient has hearing loss bilaterally. Patient's pupils are 2 mm when exhibiting PERRLA. Eyes display full extraocular movements and are symmetrical with no drainage or inflammation. Conjunctiva is pink and moist. Nose is midline with no deviated septum and patent nares with little thin, clear drainage. Patient's tongue and buccal mucosa is moist, pink, and has no lesions.</p>	<p>S1 and S2 heart sounds were audible with no S3/S4, or murmurs heard. Cardiac rhythm is regular and steady. No jugular vein distention observed. Pedal and brachial pulses are +3 strength bilaterally. Both upper and lower extremities exhibit < 3 seconds for capillary refill.</p>	<p>No crackles or wheezes are audible bilaterally during auscultation. The patient is using abdominal breathing with some retraction in the abdomen. Breathing rate was recorded as 57 breathes per minute. Patient does have a prolonged expiratory phase.</p>	<p>Patient is incontinent and voided 184 mL in 2 diapers during this shift. Urine is clear with no odor and no pain was noticed during urination. Patient does not have any catheters and is not on dialysis.</p>	<p>Patient's abdomen is tender and non-distended with 5-30 clicks/gurgle per minute. The patient has a nasogastric tube in the right nare and feeds with breast milk at 30 mL/hour continuously. The patient has not had a bowel movement while at the hospital and has not vomited. There are no drains, incisions, or wounds on the abdomen. The patient doesn't have any ostomies.</p>	<p>Patient exhibits general motor response that is purposeful. Neurovascular status is intact. Patient is not able to walk. The patient's Cummings Fall score is 3 which is a low risk fall patient.</p>	<p>Patient has 5/5 strength in upper and lower extremities bilaterally and can sense touch over each extremity.</p>	<p>Time: 1620</p> <p>Temperature: 37.1 Celsius</p> <p>Route: left axillary</p> <p>RR: 57 breathes/min</p> <p>HR: 169 bpm</p> <p>BP: 139/59 mm Hg left thigh</p> <p>MAP: 85 mm Hg left thigh</p> <p>Oxygen saturation: 99% left toe</p> <p>Oxygen needs: 15 L/min 30% nasal cannula</p>	<p>FLACC scale</p> <p>F: 0 no smile or expression</p> <p>L: normal/relaxed</p> <p>A: quietly laying</p> <p>C: no crying</p> <p>C: content/relaxed</p>

Nursing Diagnosis 1 Risk for impaired gas exchange related to medical diagnosis of acute bronchiolitis	Nursing Diagnosis 2 Risk for fluid imbalance related to increased effort to breathe	Nursing Diagnosis 3 Risk for imbalanced nutrition
<p style="text-align: center;">Rationale</p> <p>As evidenced by retractions during breathing and congestion.</p>	<p style="text-align: center;">Rationale</p> <p>As evidenced by decreased oral intake reported by the patient's mother.</p>	<p style="text-align: center;">Rationale</p> <p>As evidenced by decreased oral intake reported by the patient's mother.</p>
<p style="text-align: center;">Interventions</p> <p>Intervention 1: Supplemental O2 Intervention 2: Albuterol nebulizer</p>	<p style="text-align: center;">Interventions</p> <p>Intervention 1: NG tube for feeding Intervention 2: Pedialyte bolus</p>	<p style="text-align: center;">Interventions</p> <p>Intervention 1: NG tube for feeding Intervention 2: Continuous feeding of 30 mL/hr of breast milk</p>
<p style="text-align: center;">Evaluation of Interventions</p> <p>The patient showed improved ventilation as evidence by not having retractions while breathing and an O2 saturation of 99%. Interventions worked.</p>	<p style="text-align: center;">Evaluation of Interventions</p> <p>Patient voided 184 mL between two diapers during this shift. Interventions worked.</p>	<p style="text-align: center;">Evaluation of Interventions</p> <p>Patient decreased amount of crying and didn't need to have her pacifier dipped in sugar water to keep it in her mouth. Interventions worked.</p>

References:

- Biagi, C., Rocca, A., Poletti, G., Fabi, M., & Lanari, M. (2020). Rhinovirus infection in children with acute bronchiolitis and its impact on recurrent wheezing and asthma development. *Microorganisms*, 8(10). <https://doi.org/10.3390/microorganisms8101620>
- Jones & Bartlett Learning. (2020). *2021 Nurse's drug handbook* (20th ed.). Jones & Bartlett Learning.
- Karampatsas, K., Kong, J., & Cohen, J. (2019). Bronchiolitis: An update on management and prophylaxis. *British Journal of Hospital Medicine*, 80(5), 278-284.
- Valcyte. (2022, January 7). RxList; RxList. <https://www.rxlist.com/valcyte-drug.htm#warnings>