ACUTE ASTHMA-2

ADMITTING HISTORY

This 10-year old girl was well known to the respiratory care protocol team. Over the past 8 years she has been hospitalized for severe asthma three or four times a year. She averaged 2 to 3 day hospital stays per admission. Over the past 4 years she had required mechanical ventilation three separate times. Because of her excessive absences from school, the patient was held back in the second grade. At the time of this admission the patient was in the fourth grade.

About 2 years ago the patient's mother lost her job as a teller at a local bank because of the many days she needed to take off from work to take care of her daughter. For the past 15 months the mother had been able to work only part time as a check-out teller at a local grocery store. This turn of events further compromised an already extensive and growing medical bill.

The last time the patient was on a ventilator was about 2 years ago. After that hospitalization her mother (a single parent) quit smoking, a habit she had had for about 20 years, and the family cat was given away. In addition, the patient's mobile home and its heating system were cleaned thoroughly, and several portable air-conditioning units were installed. For the past 6 months the patient has been on albuterol inhaler four times a day as needed, a beclomethasone inhaler four times a day, and theophylline twice daily. Her mother had been instructed in how to monitor her daughter's peak expiratory flow rate (PEFR) on a regular basis. The patient's personal best PEFR was about 290 L/min.

During as recent doctor's appointment, skin tests were found to be positive for ragweed and grasses. She was started on a program of hyposensitization. Despite these efforts the patient still had a number of bad asthma episodes. Two episodes required hospitalization. Mechanical ventilation was not required on either case.

The patient was last hospitalized 6 weeks earlier. Her PEFR on admission was 175 L/min., and she had severe hypoxemia. At the time she received aerosolized terbutaline almost continuously for 3 hours and oxygen therapy per protocol. The physician on duty treated her aggressively with intravenous aminophylline and steroids. The patient progressively improved. Her ABG's returned to normal within 6 hours of admission and she was discharged the next afternoon. Fortunately, because the asthma episode occurred over a weekend, no school days were missed.

About 6 hours before the admission the patient went to bed at 9 p.m. with no respiratory complaints, although she had been achy and tired for about a week. At 1:30 a.m. she awoke short of breath. After alterting her mother, she took two puffs of albuterol, her PEFR was 235 L/min. Hoping that his asthma episode would soon subside, the mother had her daughter take another puff of her inhaler. She then encouraged her daughter to try and go back to sleep.

Within 45 minutes, however, the patient's condition had not improved and was progressively getting worse. Her PEFR was now 210 L/min. Again the mother had the daughter take two puffs of the albuterol inhaler. Ten minutes latter her PEFR was 170 L/min. At this point she put her daughter, still in pajamas, into the car and drove to the hospital emergency room.

PHYSICAL EXAMINATION (Time: 10315)

On admission to the E.R. the patient had extreme shortness of breath. She was sitting up Indian style on the hospital gurney with her hands and arms in front of her anchored to her knees in a tripod position. She was using her accessory muscles of inspiration and pursed-lip breathing and was crying, anxious in appearance, and cyanotic. She stated, "I feel horrible, and my chest is tight." She frequently demonstrated a strong productive cough. Her sputum was moderate in quantity, thick, and white.

Her PEFR was 150 L/MIN., her heart rate was 190 bpm, her blood pressure (BP) was 110/85 and her respiratory rate (r) was 28/min. Her temperature was normal. On auscultation she had diminished breath sounds with wheezing and rhonchi bilaterally. Her CXR showed severe air trapping with depressed hemidiaphragms and hyperlucency of the lungs. He SpO2 was 77% on 2 lpm nc. ABG's were pH 7.45, $PaCO_2$ 28 mmHg, HCO_3^- 19 mEq/L, PaO_2 40 mmHg, and B.E. – (- 4.35 mEq/L). The physician had the patient transferred to pediatric ICU with a respiratory care consult requested. On the patient's chart the physician had written, "Respiratory care - please assess and treat as aggressively as our protocol boundaries permit. I want to keep this patient off the ventilator if possible."

Complete first assessment using RC ASSESSMENT FLOW CHART

LATTER (Time: 0530) same day

Since her admission, neither the patient nor her mother had been able to sleep. The patient was in high Fowler's position with her arms fixed to the side bed rails. She was using her accessory muscles of inspiration and pursed-lip breathing and was cyanotic. She had a frequent strong cough that produced a moderate amount of thick, white secretions during each coughing episode. Her chest still appeared hyperinflated. She stated, I'm sorry. I'm wheezing too much, and I can't go to sleep."

Her PEFR at this time was 175 L/min. Her heart rate was 180 bpm, BP 105/82, r - 24/min. Hyperresonant percussion notes were produced bilaterally. On auscultation, she demonstrated prolonged expiration, diminished breath sounds, rhonchi, and wheezing bilaterally. No follow-up CXR had been taken. Her SpO2 was 95%, and ABG's were pH 7.48, $PaCO_2$ 34 mmHg, HCO_3^- 24 mEq/L, PaO_2 73 mmHg, and B.E. – (+ 0.73 mEq/L).

Complete a second assessment using RC ASSESSMENT FLOW CHART

EARLY MORNING, (Time: 0745) same day

The day shift therapist assigned to the patient gathered this clinical data during her morning rounds. The patient stated that she felt like she has a weight on her chest. She was using her accessory muscles of inspiration and was pursed lip breathing. Her skin was damp and cool and she was cyanotic. No cough or sputum production was noted. Her PEFR was 145 L/min. Her VS were BP 160/100, P 185, r 13/min. Her breath sounds were diminished bilaterally. Her SpO2 was 79% and her ABG's were pH 7.27, $PaCO_2$ 57 mmHg, HCO_3^- 24 mEq/L, PaO_2 51 mmHg and B.E. – (- 3.47 mEq/L).

Complete a third assessment using RC ASSESSMENT FLOW CHART