

Doctors Corner: #2

Outpatient management of Chronic Respiratory Failure

Aside from fulltime ventilator patients in the home setting, utilization, management, and payment have been problematic. As a pulmonary physician I have felt that patients with Stage IV COPD or those with chronic respiratory failure would benefit from home use of NIV/BIPAP. Patients not meeting the definition of chronic respiratory failure including desaturation on O₂ would not be covered for BIPAP. This is counterintuitive since oxygenation does not determine the need for ventilation. Over the years when we would order BIPAP for patients that we felt would benefit even though they did not meet the specified criteria, insurers would insist on a sleep study which often was not indicated. True NIV machines for home and transport use are relatively new. Invasive ventilators are reimbursed at a higher rate since historically they are needed 24/7 for life support and the patient care needs are extensive. Since the non-invasive ventilators are considered true ventilators they are reimbursed at the higher rate.

Over the past four years there has been a marked increase in the number of patients prescribed NIV. For the most part these are true ventilators (volume guaranteed) and not BIPAP. The non-invasive ventilator has an advantage in that they have a number of adjustable alarms, provide a predetermined minute volume, and are often more comfortable due to a wide array of modes and adjustments. There is no quality data that shows improved outcomes with true NIV versus BIPAP. Unfortunately the data for the use of any form of home non-invasive ventilation for COPD patients is marginal. The most recent Cochrane review states that home NIV/BIPAP for COPD should still be considered experimental since their meta-analysis of existing data does not support the use of home NIV in the COPD patient unless it's use is necessary to support life. This, in addition to the exponential increase in charges during this time period has led to increased scrutiny by insurers. Medicare plans to firmly institute their requirement for NIV reimbursement in October 2015. It is not known, but they may increase audits and potentially take back payments if they feel the use of NIV was not justified.

In contrast to the NIV data, diligent disease management in the home has been shown to improve outcomes. Reduced hospital readmission rate is among the findings. We strongly believe that NIV or BIPAP use in the home should be tied to a disease management program by respiratory therapists. Simply having a machine does not improve outcome.

Definitions:

1. Respiratory failure:
 - a) Type 1: PaO₂<60mmHg with normal or decreased PaCO₂
 - b) Type 2: PaO₂<60mmHg and PaCO₂>50mmHg
2. Chronic respiratory failure:
 - a. PaO₂<60mmHg, PaCO₂>50mmHg with pH compensated to normal range
3. Acute respiratory failure:
 - a) PaO₂<60mmHg, PaCO₂>50mmHg, and pH<7.35
4. GOLD: COPD rating stages
 - a) Stage III: Severe = FEV₁ 30-50% (FEV₁/FVC<70%) predicted
 - b) Stage IV: Very severe = FEV₁<30% (FEV₁/FVC<70%) predicted
5. NIV: non-invasive ventilation, non-invasive positive pressure ventilation
Theoretically, NIV means volume guaranteed, and NIPPV used when BIPAP is utilized. For purposes of this write-up I will use the terms NIV and BIPAP

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The bulk of the data looking at home use of NIV/BIPAP in COPD evaluated the effects and outcomes of patients using nocturnal support which in my opinion doesn't make much sense and it is not surprising the data is negative. On the other hand the in hospital use of NIV/BIPAP for patients developing respiratory failure has been validated and is well accepted. Studies mimicking ER or hospital use would seem to be the most appropriate study design to address the question of NIV/BIPAP effectiveness in the home setting. This would include an acute medical intervention in addition to NIV/BIPAP followed by a quality disease management program. It is unfortunate that somewhat indiscriminate utilization has gotten the attention of Medicare prior to our conducting the proper studies. The other current impediment to our providing optimal care to our patients with severe COPD is funding. As it stands, once payors cease paying for the vast number of existing patients using NIV they are expected to relax the criteria for BIPAP. That would be helpful since it is unlikely that we will ever prove that NIV is statistically superior to BIPAP. The bad news is that they do not plan to change the reimbursement for BIPAP from the existing amount that is allowed for treatment of obstructive sleep apnea. This amount would not cover the expense of a quality disease management program, with or without telemedicine. I would not expect any real improvement in outcomes without at least two of the three components. We hope to begin a clinical trial to evaluate this further. Hopefully, our combined efforts will eventually reveal the superior methods of treatment that can be provided at an acceptable cost.