Study challenges value of oxygen therapy in end-of-life care

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Millions of patients with advanced disease in palliative care settings receive oxygen therapy to help them breathe more easily. But a new study from Duke University Medical Center says roughly half of them don't benefit from the intervention, and among those who do benefit, it doesn't make a bit of difference whether they get pure oxygen or just plain old room air - both offer equal benefit.

"Offering oxygen when patients begin experiencing shortness of breath has become standard care in many places, but the practice is not based on rigorous scientific investigation," says Dr. Amy Abernethy, an oncologist and palliative care expert in the Duke Comprehensive Cancer Center and the lead author of the study appearing in the Sept. 3 issue of *The Lancet.* "We needed to do a study like this one to find out if what has become customary is actually meaningful and appropriate."

Abernethy says shortness of breath (also known as dyspnea) is a common symptom in very advanced stages of many diseases and disorders. Researchers say the problem is reported in 65 percent, 70 percent and 90 percent of patients nearing the end of life suffering from heart failure, lung cancer and chronic obstructive pulmonary disease, respectively. Shortness of breath is distressing for patients and their families as well, making normal activities like walking, talking, and socializing difficult. "So it is important to address it," says Abernethy.

The question becomes when and how. Clinical guidelines recommend oxygen when blood oxygen levels fall so low that a patient becomes

hypoxic - when there isn't enough oxygen in the blood to keep vital functions going. But there are large numbers of patients whose oxygen levels haven't fallen into the danger zone but who experience difficulty breathing and feel they need help. "In situations like these, physicians tend to use palliative oxygen treatment out of compassion," says Abernethy. "The decision is not based on clear evidence about what do to because we haven't had any. There's never been a large, meaningful study on the role of oxygen therapy to treat unrelenting shortness of break in this population until now."

Abernethy led a multinational team of scientists in studying 239 patients in outpatient clinics in the U.S., Australia and the U.K. who were randomized to receive either oxygen or room air for one week to see if would help ease their breathing. Most of the participants had advanced chronic obstructive pulmonary disease, but some also had had lung cancer, heart failure, or other disorders.

Participants were given canisters and fitted with nasal tubes that would deliver either oxygen or room air at the nose. Neither the patients nor their caregivers knew who was getting which therapy. Participants were instructed to keep diaries of the experience and to rate any change in their symptoms using a 1 to 10 scale twice daily.

Just over half of the patients in both groups reported that the interventions offered some degree of relief. Both treatments led to equal overall improvement in shortness of breath with corresponding change in quality of life and sleep. And when improvement occurred, it came quickly - for most, within three days.

"Interestingly, for the approximately half of study participants who reported a benefit, we found it didn't make any difference if they got oxygen or just room air," says Abernethy. "The same percentage of patients in both groups reported the same degree of relief from each

treatment, so we have to conclude that supplemental oxygen isn't necessary and delivering air by the nose works just as well."

Abernethy says what is clear is that some sort of air rushing near the nose does indeed help some people. But she points out that the same level of relief might be accomplished by using something as simple as a small fan. "It would certainly be less cumbersome and less costly."

"It's important to understand that we are not suggesting that physicians abandon medical gas therapy. It may indeed be helpful. But this study tells us that it is not the oxygen itself that is making the difference, and if treatment is not improving symptoms after a few days, then it's ok to stop treatment and try something else.

The old adage just isn't true that stopping palliative oxygen is akin to removing a sustaining, meaningful treatment when people are most vulnerable."

Abernethy says that when it comes to care toward the end of life, timing matters more than ever. "We need to be smarter at what we do for our patients - and when we do it. As physicians, we only have a very short time to dip into our toolbox to find the right solution. It's studies like this that can help inform our decisions and ultimately give our patients the best care possible."

Provided by Duke University Medical Center