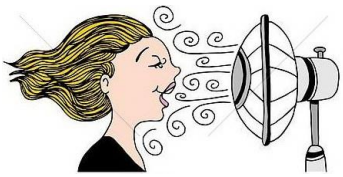
A Randomized Controlled Trial for Fan Therapy in Dyspnea

by Bob Arnold (@rabob)



Winter suits me just fine since I do not like heat. I have a lot of sympathy for patients with chronic obstructive lung disease who do not have an air conditioner during the summer. I am told that there is nothing worse than sitting in hot, humid weather and not being able to breathe.

As a palliative care physician, I love fans. When my patients are short of breath and opiates do not work (1,2) I send their families down to the local ACE hardware store to buy a hand-held fan. Therefore, I was excited to see an article in the Journal of Pain and Symptom Management on fan therapy being effective in treating dyspnea in patients with terminal cancer. (3) The previous data for fans (4) has been meager so I have always been a bit hesitant to recommend fans in my academic hospital for fear that the other doctors would think I was goofier. I was hopeful that this article could make a difference in how they thought about me (a bar that might be too high for any single article).

Briefly, this was a randomized controlled trial of 40 palliative care unit patients with advanced cancer in Japan. *The patients all had dyspnea at rest with a score of at least 3 points on a 0-10 numeric grading scale, oxygen saturations greater than 90%, and an ECOG Score of 3-4.* The only patients who were excluded were those with a fever, anemia, or a disease or treatment affecting the trigeminal nerve (the purported mechanism for the action of fans). *The intervention was a fan blowing across one side of the patient's face for five minutes*. The control group was not blinded but did have air flow directed onto the patient's exposed legs for five minutes. *The outcome measure was a change in the patient's dyspnea score*.

The two groups were similar in characteristics and causes of dyspnea. Importantly, there was no difference in the oral morphine equivalent doses at baseline (although the patients who got leg fans had slightly higher doses; the investigators tried to control for this by having a washout period before initiating therapy). The patient's cause of dyspnea and their performance status also did not differ

What did differ were the results. People who had fans to the face had a greater change in their dyspnea score (-1.35; range of -1.86 to -.84 versus -0.1; range -0.53 to 0.33). More importantly, 80%of patients who had a 1 point reduction in their dyspnea rating and 35% had a reduction of two or more points versus 25% and 5% in the fan to the leg group.

Was the study valid?

They had to screen a lot of patients to enroll 40. This makes me worry whether this is a very select group of patients that may not be representative of the general patients I see. On the other hand, they were palliative care unit patients with advanced cancer who sound like my patients. The assignment of patients to the two groups was evenly randomized; all the patients were accounted for at the conclusion and there was complete follow-up. The study was not blinded, and I could not tell if the people who were collecting the data knew which groups the patients were in as that might be a problem if they assessed the symptom differently.

Were the results clinically important?

Well this is a bit of a problem. When you try to decide what counts as clinically significant on a dyspnea scale, there is a fair amount of variation depending on the scale. However, in my very quick search of the literature regarding visual analogue scales it seems like a *clinically important change is between 10-20 on a 0-100 scale (this would translate to one or two points on the scale used in this study* - more on Minimally Clinically Importnat Difference here). So, the difference in this study may be clinically important.

Dyspnea Score	Fan-to-Face Group (n = 20)	Fan-to-Legs Group (n = 20)	P-value
Absolute change (95% CI)	−1.35 (−1.86 to −0.84)	−0.10 (−0.53 to 0.33)	<0.001
One-point reduction, n (%)	16 (80.0)	5 (25.0)	0.001
Two-point reduction or more, n (%)	7 (35.0)	1 (5.0)	0.043
Relative change (%)	−27.7%	−1.7%	0.002
≥10% reduction, n (%)	16 (80.0)	5 (25.0)	0.001
≥25% reduction, n (%)	8 (40.0)	2 (10.0)	0.065

Might other factors have resulted in this difference?

I think the investigators did quite a good job in trying to control for other medications that the patients received that might have increased or decreased dyspnea. I was particularly impressed with how they handled and reported on opiates.

Does this change my practice?

This is a little bit like the aromatherapy article that I reviewed. There is almost no risk and my experience, like the study, is largely positive, so it did not really change my practice because I was doing it anyway. Though an article might help me to lead to a more educated and intellectual discussion with my residents and fellows – the answer to that is yes and that is always a good thing. (I am currently trying to figure out if folks think I am less goofy).

Robert Arnold MD is a palliative care doctor at the University of Pittsburgh and a co-founder of VitalTalk. He loves both high and low brow comedy (The Good Place and Nanette), pop culture (the National Enquirer and Pop Culture Happy hour) and music of all kinds (not opera tho!)

References

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