

Physical counterpressure maneuvers reduced vasovagal syncope

van Dijk N, Quartieri F, Blanc JJ, et al. Effectiveness of physical counterpressure maneuvers in preventing vasovagal syncope: the Physical Counterpressure Manoeuvres Trial (PC-Trial). *J Am Coll Cardiol*. 2006;48:1652-7.

Clinical impact ratings: GIM/FP/GP ★★★★★☆ Cardiology ★★★★★☆☆☆ Neurology ★★★★★☆☆

QUESTION

In patients with vasovagal syncope, does training in physical counterpressure maneuvers reduce recurrent syncope?

METHODS

Design: Randomized controlled trial (Physical Counterpressure Manoeuvres Trial).

Allocation: Concealed.*

Blinding: Blinded (patients).*

Follow-up period: Mean 14 months.

Setting: 15 medical centers worldwide.

Patients: 223 patients who were 16 to 70 years of age with recurrent vasovagal syncope (≥ 3 syncope episodes in the past 2 y or ≥ 1 syncopal spell and 3 presyncopal episodes in the past y) or a suspected diagnosis confirmed by tilt-table testing who had recognizable prodromal symptoms and a normal physical examination and electrocardiogram. Exclusion criteria included suspected or overt heart disease with a high likelihood of cardiac syncope; orthostatic hypotension; loss of consciousness different from syncope; the vascular steal syndrome; psychological, physical, or cognitive barriers to participation; suspected poor compliance; pregnancy; and life expectancy < 1 year.

Intervention: Conventional therapy (expla-

nation of underlying mechanisms of vasovagal syncope, lifestyle modification advice, and an information leaflet) ($n = 117$) or conventional therapy plus training in physical counterpressure maneuvers (PCM) ($n = 106$). PCM consisted of leg crossing with tensing of leg, abdominal, and buttock muscles; handgrip with contraction of a ball or other object; or arm tensing by gripping 1 hand with the other in situations in which patients were prone to vasovagal syncope or when prodromal symptoms occurred.

Outcomes: Burden of syncope recurrence. Secondary endpoint was time to first recurrence.

Patient follow-up: 93% (mean age 38 y, 66% women) (intention-to-treat analysis).

MAIN RESULTS

Conventional therapy plus PCM reduced the syncope burden more than did conventional

therapy alone (median number of syncope episodes/patient per y 0.0 vs 0.6, $P = 0.004$). PCM reduced syncope recurrence more than did conventional therapy (Table). Groups did not differ for time to first recurrence (4.8 vs 6.6 mo, $P = 0.106$). Multivariate analysis showed effectiveness of PCM was not affected by sex, age, previous number of syncopal episodes, results of tilt-table test, or most-used maneuver.

CONCLUSION

In patients with vasovagal syncope, training in physical counterpressure maneuvers reduced recurrent syncope.

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*See Glossary.

Conventional therapy plus physical counterpressure maneuvers (PCM) vs conventional therapy alone for vasovagal syncope at mean 14 months†

Outcome	PCM	Conventional therapy	RRR (95% CI)	NNT (CI)
Recurrent syncope	32%	51%	36% (11 to 53)	5 (3 to 17)

†Abbreviations defined in Glossary.

COMMENTARY

Fainting is most commonly the result of a vasovagal (neurocardiogenic) reflex that causes bradycardia and peripheral vasodilation. Treatments focused on the bradycardia (e.g., pacemakers) have proven ineffective in rigorous studies (1). Treatments designed to counteract the peripheral vasodilation (e.g., high-salt diets, mineralocorticoids, and α -agonists) are potentially harmful, bothersome, unproven, and inefficient (requiring daily intervention for an infrequent event). β -blockers were considered promising because they were thought to block the afferent stimulus for the vasovagal reflex, but they have proven ineffective in placebo-controlled trials (2).

In contrast, van Dijk and colleagues showed that use of specific isometric muscle contractions is a just-in-time intervention that is simple and inexpensive, has a strong biological rationale from experiments in the physiology laboratory, and is clinically effective when taught by different clinicians in multiple clinics.

However, there is a methodological concern. Research on vasovagal syncope provides a superb illustration of the need for rigorous blinding in controlling for the placebo effect. For example, initial trials with pacemakers purported to show dramatic benefit, but these results

proved erroneous when additional trials rigorously controlled for the placebo effect by inserting pacemakers in all study participants and randomly (and blindly) keeping half turned off (1). The study by van Dijk was not rigorously blinded because the control-group patients were not taught sham maneuvers; therefore, neither the patients nor the outcome assessors could be truly blinded.

Despite the uncertainty raised by inadequate blinding, the counterpressure maneuvers can be strongly advocated as initial therapy for patients with vasovagal syncope and a prodrome.

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References

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