

# Baroreceptor Reflex Failure after Curative Chemoradiation for Oropharyngeal Cancer: A Potential Use of an Established Therapy

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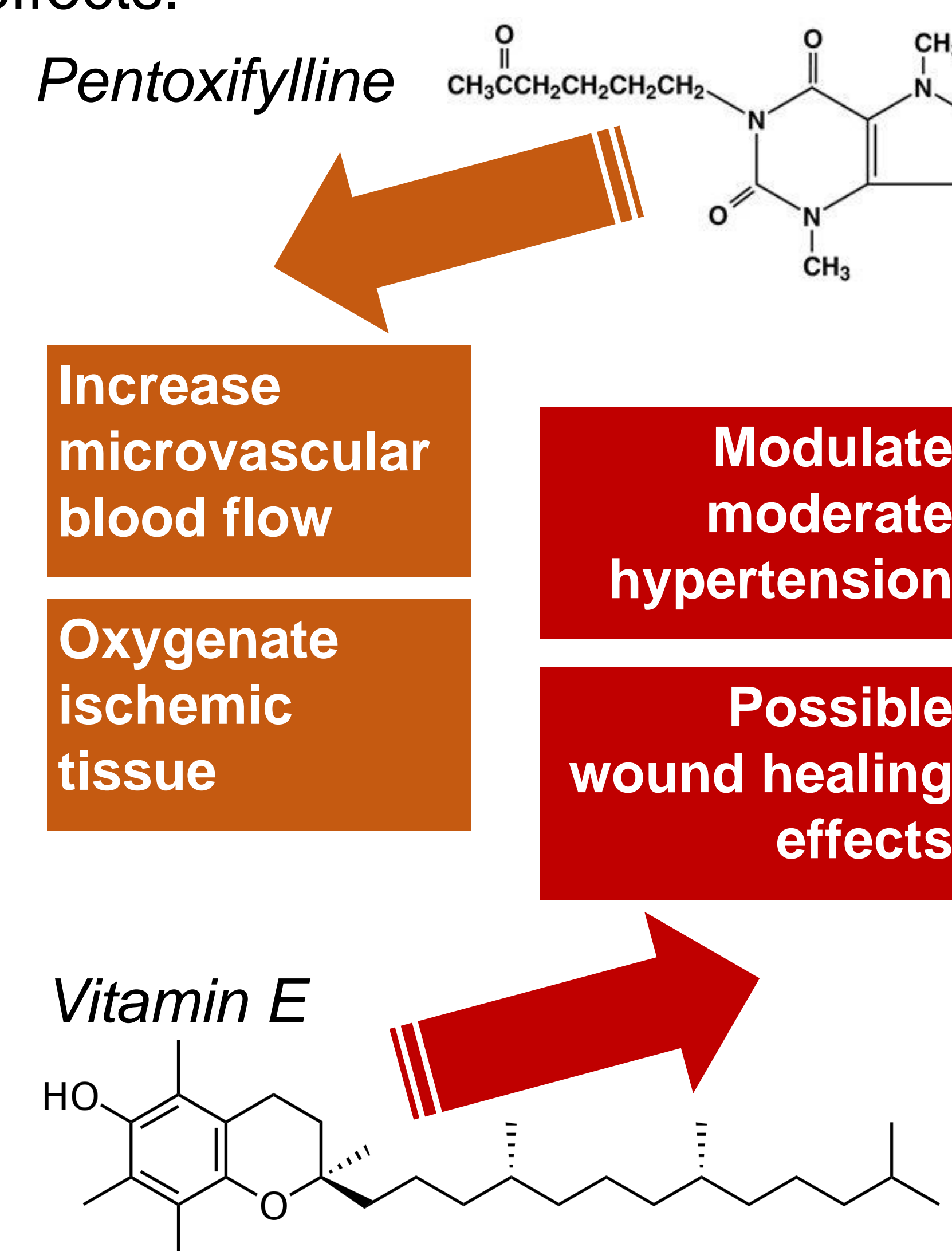
## BACKGROUND & PURPOSE

Baroreceptor failure is a rarely described late effect of head and neck radiation therapy (H&N RT) characterized by labile blood pressure. Pentoxifylline is a medication used to reduce blood viscosity to treat intermittent claudication. The combination of pentoxifylline (PTX) and Vitamin E (PTX-E) has shown to improve late effects of H&N RT including soft tissue fibrosis and osteoradionecrosis. Here, we describe its successful use in helping a patient with signs and symptoms of baroreceptor failure.

## PATIENT CASE & TREATMENT COURSE

A 68-year-old man with T1N2b squamous cell carcinoma was treated with 70 Gy IMRT with weekly cisplatin. Thirteen years s/p therapy, he noticed signs and symptoms of baroreceptor reflex failure with labile hypertension (systolic BP > 200) and associated epistaxis. These episodes were poorly controlled with antihypertensive medications. We initiated pentoxifylline 400 mg and Vitamin E 400 IU twice-a-day as therapy directed at baroreceptor fibrosis.

Three months status-post PTX-E, the patient had clinical improvement with no further episodes of epistaxis. The patient continued this regimen for 17 months with persistent benefit. His blood pressure remains stable within normal limits. Pre-treatment average systolic pressure was 186 mmHg (range 165-218) and diastolic pressure was 109 mmHg (range 94-127). After initiation of therapy, there has been a gradual improvement with average systolic pressure of 149 mmHg (range 104-180) and diastolic pressure of 91 mmHg (range 63-110). As a result, in average his systolic BP had a drop of 37 mmHg and his diastolic BP had a drop of 18 mmHg after the treatment. He has tolerated this regimen with no ill effects.

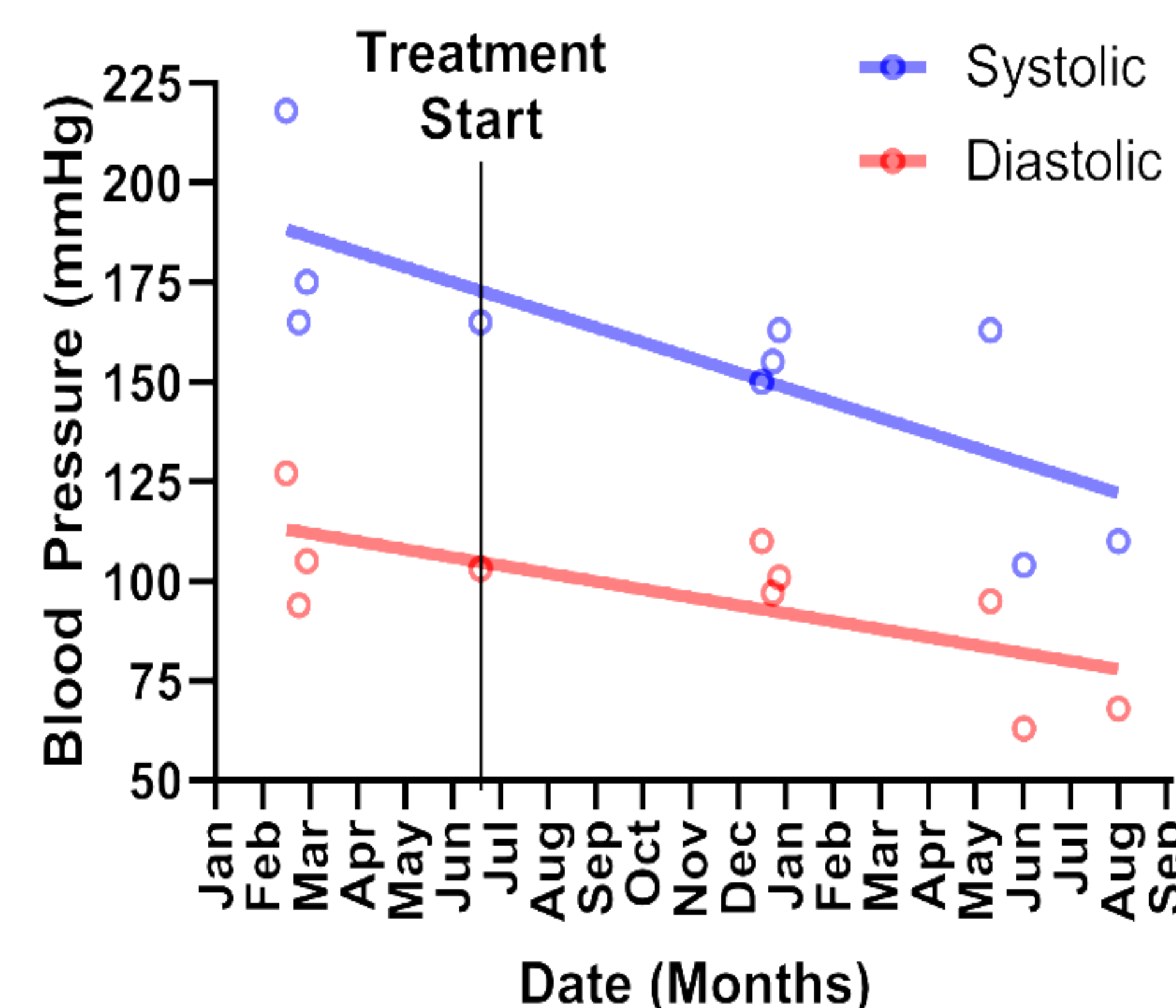


## RESULTS

	Systolic BP (Mean, range)	Diastolic BP (Mean, range)
Pre-PTX-E	186 (165-218)	109 (94-127)
Post-PTX-E	149 (104-180)	91 (63-110)
Improvement	37 mmHg	18 mmHg

**Table 1** | Pre- and post-PTX-E treatment effect on systolic and diastolic blood pressures.

## Cardiovascular Change Over Time



	Systolic	Diastolic	Pulse
Slope	-1.825	-1.164	0.1758
R square	0.6172	0.6712	0.206

**Figure 2** | Timeline of systolic blood pressures, diastolic blood pressures, and HR during patient follow up.

## SUMMARY / CONCLUSION

- Baroreceptor failure is a late effect of curative H&N chemoradiation seen many years after therapy.
- We report clinical improvement in symptoms and quantitative improvement in blood pressure using a regimen of pentoxifylline and Vitamin E
- These effects persisted without any additional intervention related to blood pressure control

## REFERENCES / ACKNOWLEDGEMENTS

Shah-Becker *et al.* Baroreceptor reflex failure: Review of the literature and the potential impact on patients with head and neck cancer. *Head Neck*. 2017 Oct; 39 (10): 2135-2141