Autonomic Dysfunction in Cancer Cachexia Coincides With Large Fiber Polyneuropathy

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CONTEXT
Cancer cachexia occurs in a majority of patients suffering from solid malignancies. Recent works suggest paraneoplastic mechanisms. Empirical studies also found autonomic dysfunction in cancer patients, but comprehensive evaluation of the peripheral nervous system is lacking.

OBJECTIVES
To further understand the role of the autonomic and peripheral nervous system in cancer cachexia to guide treatment.

METHODS
We prospectively investigated cachectic cancer patients for parasympathetic autonomic dysfunction with a time domain based analysis of heart rate variability (breathing at rest, deep breath and in response to the valsalva manoeuvre). Blood pressure changes following the valsalva manoeuvre were used as a marker of the sympathetic noradrenergic system. Orthostatic hypertension was investigated in response to active standing. We used a non-invasive continuous beat-to-beat heart rate assessment and blood pressure monitoring. The sympathetic cholinergic nervous system was evaluated with the sympathetic skin response. A detailed neurological examination, nerve conduction studies and electromyography were also conducted.

RESULTS
Thirteen patients were enrolled (median age 66 years). Median time from inclusion until death was 3.5 months. Twelve out of 13 patients showed abnormal results in at least one autonomic test. Sympathetic noradrenergic and cholinergic abnormalities were discovered in six patients each and five patients had orthostatic hypotension. Only one patient showed abnormal results in parasympathetic cholinergic tests. Asymptomatic large fiber polyneuropathy was detected in eight patients.

CONCLUSION
Large fiber polyneuropathy coincides with autonomic dysfunction in cachectic cancer patients. Our findings suggest a relevant role of sympathetic
impairment in cancer cachexia.

type: journal paper/review (English)
date of publishing: 4-4-2014
journal title: J Pain Symptom Manage (48/4)
ISSN electronic: 1873-6513
pages: 611-618