

Association between asymptomatic hypertension and adverse cardiovascular and neurological events after outpatient interventional pain medicine procedures

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Dear Editor,

Introduction

Hypertension is a risk factor for major end-organ damage.¹ For this reason, guidelines for ambulatory surgery centers require that blood pressure be monitored during procedures. Many pain physicians routinely monitor blood pressure during pain procedures, but it is not known whether they do so out of concern, out of habit, or simply to comply with guidelines. Some physicians cancel procedures if patients present with asymptomatic hypertension on the day of the injection.

The present study was undertaken to investigate whether any empirical evidence could be found to justify concern about hypertension during the performance of pain procedures. The null hypothesis tested was that asymptomatic hypertension constitutes no risk during pain procedures. This hypothesis could be refuted if episodes of adverse events, attributable to hypertension, could be found in a large series of procedures.

Methods

After ethics approval was obtained from the University of Pennsylvania, a chart review was performed of consecutive pain procedures performed under local anesthesia at the Tuttleman Surgery Center of the University of Pennsylvania Hospital, between April 1, 2013, and April 1, 2018. The procedures encompassed epidural injections, radiofrequency neurotomies, medial branch blocks, peripheral nerve blocks, and injections into zygapophysial, sacro-iliac, hip, knee, or shoulder joints. Pain procedures performed under sedation were excluded.

The records were searched for evidence of any cardiovascular adverse events during 24 hours after the procedure. For patients with asymptomatic systolic pressure above 210 mmHg or diastolic pressure above 120 mmHg, the search for adverse events was extended to cover 7 days after the procedure.

Results

During the period of study, 7014 patients underwent 16 667 procedures. The mean pressures of the patients treated were 139 ± 23 mmHg systolic and 81 ± 14 mmHg diastolic. The majority of systolic pressures were in the Stage II hypertension category of the American Heart Association. The majority of diastolic pressures were in the normal category. There were 1258 patients with systolic pressure greater than 210 mmHg or diastolic pressure greater than 120 mmHg.

No evidence was found of any myocardial infarction, cerebrovascular event, neurological deficit, death, or hospitalization for cardiovascular events within 24 hours of the procedure, nor were there any such events up to 7 days after the procedure in the 1258 patients with severe hypertension.

The only adverse events encountered were 5 instances of vasovagal reaction, 2 instances of self-limited numbness and tingling, 1 episode of being unresponsive for 20 seconds (occurring after the procedure), 1 episode of palpitations, and 1 case of hypertension with chest tightness, which proved uneventful.

Discussion

The only adverse events encountered in the present study are ones known to be typical of procedures involving needles.^{2–7} None of these are attributable to hypertension.

Guidelines for an ambulatory surgery center may allow for canceling the case if the preprocedural systolic or diastolic pressure is above a certain threshold. Physicians can elect to do the same. Such practices might have prevented some patients with asymptomatic hypertension before a pain injection from being part of the study. Patients who had asymptomatic hypertension during pain procedures and in the recovery area suffered no harm. Finding no adverse events in 7014 patients provides 99% confidence intervals of 0.00% to 0.05% per patient and 0.00% to 0.04% per procedure in terms of the risk of adverse events attributable to asymptomatic hypertension. This figure is sufficiently small to reassure

pain physicians that asymptomatic hypertension is a negligible risk factor during pain injections under local anesthesia. Asymptomatic hypertension does not need to be a contraindication for undertaking or completing such procedures.

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