POEMs

Patient-Oriented Evidence That Matters

Fully Automated Blood Pressure Measurement Is the Way to Go in the Office

Clinical Question

Is fully automated blood pressure measurement more accurate than manual sphygmomanometry?

Bottom Line

There are two takeaways and a recommendation from the analysis of in-office automated blood pressure measurement: automated measurement aligns better with ambulatory blood pressure monitoring, the best predictor of cardiovascular events, than manual measurement; manual readings are an average 13.4 to 14.5 mm Hg (systolic) higher than daytime ambulatory or automated readings in patients with hypertension; the recent guidelines from the American College of Cardiology/American Heart Association are based on automated readings. Follow them only if you switch from the squeeze bulb to the machine. (Level of Evidence = 1b)

Synopsis

The authors searched three databases, including the Cochrane Central Register of Controlled Trials, to identify studies that compared automated in-office blood pressure readings with standard or research-based manual measurement or ambulatory automated recording during awake hours (the latter used as the reference standard). The authors also searched reference lists of identified articles. Two authors independently selected articles for inclusion, and a single investigator extracted data. They included papers in any language. Automated measurement had to be performed without anyone activating the machine and used three to five readings separated by one- to two-minute intervals. In 31 studies of 9,279 participants, the pooled mean differences between routine measurement and awake ambulatory measurements were 13.4 mm Hg systolic and 5.9 mm Hg diastolic. There was no difference between ambulatory and automated blood pressure. The difference between manual and automated blood pressures was 14.5 mm Hg systolic in patients with hypertension. There was a great deal of heterogeneity among studies for all outcomes that could not be explained by any of the variables available to the researchers. There was no evidence of publication bias.

Study design: Meta-analysis (other)

Funding source: Self-funded or unfunded

Setting: Various (meta-analysis)

Reference: *Roerecke M, Kaczorowski J, Myers MG. Comparing automated office blood pressure readings with other methods of blood pressure measurement for identifying patients with possible hypertension: a systematic review and meta-analysis.* JAMA Intern Med. *2019;179(3):351-362.*

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As-Needed Budesonide/Formoterol Similar to Maintenance Budesonide Plus SABA in Patients with Mild Asthma

Clinical Question

For patients with mild asthma, is as-needed use of an inhaled steroid/long-acting beta-agonist as effective as either as-needed albuterol alone or as-needed albuterol plus daily use of an inhaled steroid?

Bottom Line

In these patients with mild asthma (more than one-half used a short-acting beta-agonist [SABA] such as albuterol two or fewer times per week), as-needed use of a combined budesonide/formoterol (Symbicort) inhaler was as effective at

preventing exacerbations as daily maintenance budesonide (Pulmicort) plus an as-needed SABA, and both were better than an as-needed SABA alone. The trial loses points for failing to mask outcome assessors and for having an imbalance in the number of previous severe exacerbations at baseline. (Level of Evidence = 1b–)

Synopsis

This study included patients with mild asthma who used a SABA alone at least twice in the previous three months, but no more than twice daily on average, and those who used a SABA alone and experienced a severe exacerbation in the past 12 months (7.3% of those enrolled). This raised the question of why a patient who had had a severe exacerbation (defined as requiring systemic corticosteroids or hospitalization) was being managed by a SABA alone. Patients hospitalized in the past 12 months were excluded. A total of 668 patients were randomized into one of three groups: (1) continued use of an as-needed SABA alone, (2) budesonide, 200 mcg twice daily, plus the SABA as needed, and (3) use of a combination inhaler containing 200 mcg of budesonide and 6 mcg of formoterol, one inhalation as needed to control symptoms. At baseline, there were some imbalances, with fewer women in the as-needed SABA group (50.7% vs. 55.5% to 57.3%), and more serious exacerbations in the past 12 months in the as-needed SABA group (20 vs. 17 for budesonide maintenance and only 12 for the budesonide/formoterol group). Analysis was by intention to treat, and only 13 patients were lost to follow-up during the one-year study. An exacerbation was defined as worsening symptoms requiring an urgent visit to a physician, prescription of a systemic corticosteroid, or heavy use of a SABA during a 24-hour period. The rate of exacerbations was significantly higher in the as-needed SABA group (0.4 per patient per year) compared with either budesonide/formoterol (0.195 per patient per year) or budesonide maintenance (0.175 per patient per year). For 100 patients there would be 40, 20, and 18 exacerbations per year, respectively (number needed to treat = 5 to prevent one exacerbation over one year). There were significantly fewer serious exacerbations in the as-needed budesonide/formoterol group than in the maintenance budesonide or as-needed SABA-only groups; nine, 21, and 23 episodes, respectively. The imbalance in severe exacerbations at baseline may have influenced this to some degree.

Study design: Randomized controlled trial (nonblinded)

Funding source: Industry

Allocation: Concealed

Setting: Outpatient (any)

Reference: *Beasley R, Holliday M, Reddel HK, et al.; Novel START Study Team. Controlled trial of budesonide-formoterol as needed for mild asthma.* N Engl J Med. *2019;380(21):2020-2030.*

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Platelet-Rich Plasma Injection Not Beneficial for Nonoperative Treatment of Rotator Cuff Disease

Clinical Question

Are platelet-rich plasma injections beneficial in the nonoperative treatment of rotator cuff disease in adults?

Bottom Line

The review found no evidence that supports any additional benefit of platelet-rich plasma injections compared with various control interventions, including saline placebo, in the nonoperative treatment of rotator cuff disease in adults. Exercise therapy was shown to be superior to platelet-rich plasma injections in improving outcomes in the included studies. (Level of Evidence = 1a)

Synopsis

The benefits of platelet-rich plasma injections in the management of various tendinopathies are inconsistent. The investigators searched Medline, Embase, and the Cochrane Library for English-language–only randomized controlled trials that compared platelet-rich plasma injections with control treatments in adults with chronic rotator cuff disease. Two reviewers used a standard evaluation tool to independently analyze individual articles for inclusion criteria and risk of bias. Discrepancies were resolved after consensus discussion with a third reviewer. Five studies (N = 214) met inclusion criteria, with one considered at low risk, three at moderate risk, and one at high risk of bias. Various controls included corticosteroid injection, dry needling, saline solution injection, and formal exercise therapy. At follow-up (range of six to 12 months), no differences occurred

between active treatment with platelet-rich plasma injections and any of the control interventions for pain scores, disability measures, or range of motion. In the two studies in which platelet-rich plasma injections alone were used in the treatment group, the control group receiving exercise therapy had superior clinical outcomes.

Study design: Systematic review

Funding source: Unknown/not stated

Setting: Various (meta-analysis)

Reference: *Hurley ET, Hannon CP, Pauzenberger L, et al. Nonoperative treatment of rotator cuff disease with platelet-rich plasma: a systematic review of randomized controlled trials.* Arthroscopy. *2019;35(5):1584-1591.*

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Early Cardioversion No Better Than Delayed Cardioversion for Recent-Onset Symptomatic Atrial Fibrillation

Clinical Question

Is it necessary to immediately restore sinus rhythm by early cardioversion in patients who present to the emergency department with recent-onset symptomatic atrial fibrillation?

Bottom Line

For patients presenting to the emergency department with recent-onset symptomatic atrial fibrillation, early cardioversion is no better than delayed cardioversion in achieving sinus rhythm within four weeks. The delayed approach results in more spontaneous conversions to sinus rhythm, avoiding cardioversion altogether, without increasing the rate of cardiovascular complications. (Level of Evidence = 1b)

Synopsis

Atrial fibrillation can often terminate spontaneously without the need for pharmacologic or electrical cardioversion. In this study, investigators included adults who presented to the emergency department with new or recurrent symptomatic atrial fibrillation of recent onset (less than 36 hours). The patients were randomized into a delayed cardioversion group (n = 218) or a standard early cardioversion group (n = 219). In the early group, patients received immediate pharmacologic cardioversion with flecainide (or electrical cardioversion if flecainide was contraindicated or unsuccessful) and were discharged when stable. In the delayed group, patients received rate-controlling medications, were discharged when clinically stable, and were given outpatient follow-up the next day. If they remained in atrial fibrillation, they were then referred back to the emergency department for delayed cardioversion. The two groups were balanced at baseline: mean age was 65 years, approximately 40% were taking anticoagulants, and two-thirds had a CHA_2DS_2-VASc score of 2 or higher. Only three patients in the delayed group and five in the early group required hospitalization; all others were discharged from the emergency department. The median duration of the index emergency department visit was 158 minutes in the early group and 120 minutes in the delayed group. The primary outcome of the presence of sinus rhythm on an electrocardiogram at a four-week outpatient visit occurred in 91% of the delayed group and 94% of the early group, meeting noninferiority criteria for the delayed approach (P = .005). In the delayed group, 69% converted to sinus rhythm spontaneously within 48 hours after rate-control medication and only 28% required delayed cardioversion. The number of cardiovascular complications were infrequent and did not differ between the two groups.

Study design: Randomized controlled trial (nonblinded)

Funding source: Government

Allocation: Concealed

Setting: Emergency department

Reference: *Pluymaekers NA, Dudink EA, Luermans JG, et al.; RACE 7 ACWAS Investigators. Early or delayed cardioversion in recent-onset atrial fibrillation.* N Engl J Med. *2019;380(16):1499-1508.*

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