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This series is coordinated by Sumi Sexton, MD, Associate Deputy Editor.

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Bare Arm Best for Blood Pressure Measurement

Clinical Question

What is the best way to measure blood pressure?

Bottom Line

To get the most accurate measure, let patients sit for a few minutes, and then measure their blood pressure on a completely bare arm. Does a difference of 4 mm systolic and 6 to 7 mm diastolic matter? It might, especially when deciding whether to add a second or third drug. Also, remember to confirm office-based blood pressures with an out-of-office measurement (either ambulatory blood pressure monitoring or home blood pressure measurements), because many patients have white coat hypertension. (Level of Evidence = 2c)

Synopsis

It is important that we measure blood pressure in our offices in the same way it is done in studies of hypertension diagnosis and treatment. Otherwise, we risk misclassifying patients and may overtreat or undertreat them. This simple cross-sectional study recruited 186 adults in a Japanese primary care clinic and in two adult day care facilities. Blood pressure was measured using an automated cuff in three conditions: a completely bare arm, an arm covered by a sleeve no more than 1 mm thick to the wrist (a cardigan with a 1-mm thick sleeve was provided, if necessary), or an arm with the sleeve rolled up over the elbow. All patients were first asked to sit in a

chair for five minutes before the measurement, with their arm supported and level. The researchers systematically varied the order in which blood pressure was measured. For each condition, the final blood pressure was the average of three measurements. The participants had a mean age of 75 years, 62% were female, and approximately 63% had hypertension. The mean blood pressures were 129/67 mm Hg taken on a bare arm, 133/73 mm Hg on a fully sleeved arm, and 133/74 mm Hg on an arm with the rolled-up sleeve. The difference persisted after adjusting for age and measurement order in an analysis of variance model. It is also interesting that the mean blood pressure decreased from the first measurement (135/74 mm Hg) to the second measurement (131/71 mm Hg) and to the third measurement (129/70 mm Hg).

Study design: Cross-sectional

Funding source: Self-funded or unfunded

Setting: Outpatient (primary care)

Reference: Ozone S, Shaku F, Sato M, Takayashiki A, Tsutsumi M, Maeno T. Comparison of blood pressure measurements on the bare arm, over a sleeve and over a rolled-up sleeve in the elderly. *Fam Pract.* 2016;33(5):517-522.

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Testosterone Does Not Improve Cognition in Memory-Impaired Older Men with Low Testosterone Levels

Clinical Question

Does supplemental testosterone improve cognitive function in memory-impaired older men with low testosterone levels?

Bottom Line

Testosterone supplementation for men 65 years or older with age-associated memory impairment and a low baseline testosterone level was not associated with significant improvements in memory or other cognitive functions. (Level of Evidence = 1b)

Synopsis

These investigators recruited adult men, 65 years or older, with a mean of two morning serum testosterone concentrations of less than 275 ng per dL (9.5 nmol per L). Exclusion criteria included significant cognitive ►

impairment (Mini-Mental State Examination score < 24) and severe depression. Age-associated memory impairment was classified as subjective memory concerns and relative memory impairment (defined as more than one standard deviation below the performance scores for men 20 to 24 years of age, but not greater than two standard deviations below the scores of age-matched men) on a standard scoring tool. A total of 493 men randomly received (concealed allocation assignment) testosterone gel, 1% concentration, at an initial dosage of 5 g daily or matched placebo. The dosage of testosterone was adjusted by an unmasked study investigator to achieve a level within the mid-normal range for young men (500 to 800 ng per dL [17.4 to 27.8 nmol per L]). To maintain participant and treating-clinician masking, the dosage of placebo gel was also adjusted simultaneously. Individuals masked to treatment group assignment assessed outcomes. Complete follow-up occurred for 97.3% of participants at 12 months.

Using intention-to-treat analyses, there were no significant improvements between the testosterone and control group on measurements of delayed paragraph recall scores, visual memory, executive function, or spatial ability.

Study design: Randomized controlled trial (double-blinded)

Funding source: Government

Allocation: Concealed

Setting: Outpatient (specialty)

Reference: Resnick SM, Matsumoto AM, Stephens-Shields AJ, et al. Testosterone treatment and cognitive function in older men with low testosterone and age-associated memory impairment. *JAMA*. 2017;317(7):717-727.

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Antibiotics May Equal Surgery for Children with Appendicitis

Clinical Question

Can children with appendicitis be treated with antibiotics instead of surgery?

Bottom Line

Antibiotic treatment appears to be effective for children with uncomplicated appendicitis without evidence of perforation or rupture, with 97% of children discharged

without surgery. Approximately one in seven children will eventually have recurrence and require surgery. A couple of days of intravenous antibiotics is an option before surgery. (Level of Evidence = 2a)

Synopsis

These researchers assembled studies that evaluated antibiotic use in the treatment of children with acute uncomplicated appendicitis (i.e., without perforation or rupture, or evidence of an abscess or mass). Two investigators independently searched three databases, including Cochrane Central, as well as reference lists, to identify all English-language studies that evaluated antibiotic treatment. Two authors independently extracted the data and evaluated its quality. All but one of the 10 studies (N = 766 children) were observational; four of the studies did not have a comparison group. Antibiotic treatment in these studies was usually intravenous for 48 hours, followed by oral treatment for an additional three to five days. Antibiotic treatment was effective in resolving the infection without the need for appendectomy during the initial hospitalization in 396 of 413 children (97% of children; 95% confidence interval, 96% to 99%). Over prolonged follow-up (eight weeks to four years), appendicitis occurred in 14% (95% confidence interval, 7% to 21%), but there was pronounced heterogeneity among the studies. Complications occurred similarly in children treated with surgery or with antibiotics. The studies are of low quality, for the most part, and it is time for a large randomized study (as has been done in adults: *World J Surg*. 2016;40(10):2305-2318). Still, if these were the data used to evaluate surgery as the first-line treatment for appendicitis, we would never have instituted it.

Study design: Meta-analysis (other)

Funding source: Self-funded or unfunded

Setting: Various (meta-analysis)

Reference: Georgiou R, Eaton S, Stanton MP, Pierro A, Hall NJ. Efficacy and safety of nonoperative treatment for acute appendicitis: a meta-analysis. *Pediatrics*. 2017;139(3):e20163003.

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