



## Does ambulatory blood pressure monitoring aid in the management of patients with hypertension?

### EVIDENCE-BASED ANSWER

Twenty-four hour ambulatory blood pressure monitoring (ABPM) has a higher correlation with target end-organ damage than standard office measurements and is superior for risk stratification. Because it is more complicated to implement than office-based measurements, it should be reserved for: establishing the diagnosis of white-coat hypertension or borderline hypertension in previously untreated patients; evaluating previously treated patients with resistant hypertension; diagnosing and treating hypertension disorders of pregnancy; and identifying nocturnal hypertension. (Grade of recommendation: B, based on consistent cohort studies and trials, requiring extrapolation in certain clinical circumstances)

### EVIDENCE SUMMARY

The accuracy of ABPM has been validated for use in the adult, pediatric, and pregnant populations.<sup>1</sup> Community-based cohort studies have consistently shown ABPM to be more reproducible than office blood pressure measurements.<sup>2,3</sup> Also, ABPM correlates better with disease-oriented outcomes, such as left ventricular mass, retinopathy, and microalbuminuria than does office measurement.<sup>4,5</sup>

ABPM also has a better correlation with several patient-oriented outcomes. A cohort study of 1076 patients found that an elevation in ABPM was a better predictor of cardiovascular events and overall mortality than office measurements.<sup>6</sup> Another cohort study of 1464 patients found ABPM was linearly related to stroke risk and more predictive of a cerebrovascular event than was screening blood pressure over an average of 6.4 years.<sup>7</sup>

In a randomized parallel-group trial, 419 untreated patients were followed up using either ABPM or conventional office measurements to initiate and adjust antihypertensive therapy.<sup>8</sup> When compared with standard office measurement, management with ABPM led to less intensive antihypertensive drug therapy without loss of blood pressure control. Evidence from these and other studies indicates that ABPM can be useful for risk stratification of patients in whom the diagnosis of hypertension is not clear.<sup>9</sup> However, trials studying the long-term outcomes of the treatment of ambulatory blood pressure levels are still lacking.

### RECOMMENDATIONS FROM OTHERS

An ad hoc committee of the American Society of Hypertension, the Canadian Hypertension Society, and the British Hypertension Society all agree that ABPM is useful in excluding the diagnosis of white-coat hypertension and evaluating resistant hypertension or episodic hypertension.<sup>1</sup> The sixth report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of Hypertension and the National High Blood Pressure Education Program working group on ambulatory blood pressure monitoring add that ABPM plays a limited role in the routine evaluation of patients with suspected hypertension.<sup>1</sup>

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### CLINICAL COMMENTARY

Why has ABPM not supplanted office-based sphygmomanometry as a preferred measurement technique? Because it is inconvenient. The first barrier to eliminating hypertension is getting blood pressure readings in the first place, and ABPM is not well suited for this. But in borderline or difficult situations (eg, white-coat or nocturnal hypertension), where multiple determinations are necessary, ABPM has something to offer. Perhaps its greatest value is in developing more parsimonious and effective treatment regimens for treatment-resistant patients, or those for whom side effects are a problem.

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### REFERENCES

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## What is the most effective treatment for tinea pedis (athlete's foot)?

### EVIDENCE-BASED ANSWER

Topical therapy is effective for tinea pedis. Topical terbinafine has a 70% cure rate, is available over the counter (OTC), and requires only 1 to 2 weeks of therapy. Two other OTC topicals, tolnaftate and miconazole, require 2 to 4 weeks to achieve slightly lower cure rates, but are considerably less expensive. (Grade of recommendation: A)

The most effective treatment for tinea pedis is oral terbinafine 250 mg twice a day for 2 weeks (94% clinical cure rate). However, oral terbinafine is expensive and not approved for this indication. Oral therapy may be required for patients with hyperkeratotic soles, severe disease, topical therapy failure, chronic infection or immunosuppression. (Grade of recommendation: B, based on small randomized controlled trials [RCTs] with limited head-to-head comparisons of drugs)

### EVIDENCE SUMMARY

The Cochrane Database of Systemic Reviews<sup>1,2</sup> reported 72 placebo-controlled trials of topical agents that yielded the following cure rates: undecenoic acid, 72%; allylamines (terbinafine, naftifine, butenafine), 70%; tolnaftate, 64%; azoles (miconazole, clotrimazole, ketoconazole, econazole, oxiconazole), 47%. A meta-analysis of

11 RCTs suggests that allylamines are slightly more effective than azoles.

Orally administered antifungal agents are expensive and can have systemic side effects. Griseofulvin and ketoconazole are approved for oral therapy, but product labels clearly state that they should be used only after topical agents have failed. Griseofulvin has been used for more than 30 years, is well tolerated, and efficacious in treating dermatomycoses in the range of 60%.<sup>3</sup> Ketoconazole's cure rate is similar, but its use in cutaneous infections is limited by multiple drug interactions and serious side effects. Three placebo-controlled RCTs of itraconazole of varying doses and duration of treatment suggested favorable clinical cure of moccasin-type tinea pedis (51%-85%). The most effective itraconazole regimen was 200 mg twice daily for 1 week. In a large double-blind multicenter study of all forms of tinea pedis, De Keyser et al<sup>4</sup> compared 2 weeks of terbinafine at 250 mg/day to 2 weeks of itraconazole at 100 mg/day. After 8 weeks they found terbinafine superior to itraconazole for clinical cure (94.1% vs 72.4%). In a single multicenter open study the cure rate for fluconazole 150 mg was 77% when used once weekly for 3 weeks. See Table 1 for summary.

### RECOMMENDATIONS FROM OTHERS

American Academy of Dermatology Guidelines<sup>5</sup> recommend topical therapy for initial treatment of tinea pedis. Oral therapy may be required to treat patients with hyperkeratotic soles, disabling or extensive disease, topical therapy failure, chronic infection, or immunosuppression. Surgical therapy is not indicated.

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TABLE

RECOMMENDED TOPICAL TREATMENTS FOR TINEA PEDIS				
Drug	Cure Rates, %	Form	Frequency and duration of treatment*	Comments
Miconazole (Micatin)	47	2% lotion, spray, cream, powder	BID for 2-4 weeks	Inexpensive, OTC
Terbinafine (Lamisil)	70	1% cream, solution, spray	BID for 1-2 weeks	Shorter length of treatment, OTC
Naftifine (Naftin)	70	1% gel, cream	QD for 2-4 weeks	Once a day, Rx
Butenafine (Mentax)	70	1% cream	QD for 4 weeks	Once a day, Rx
Tolnaftate (Tinactin, Altate)	64	1% powder, spray, cream	BID for 2-4 weeks	Inexpensive, OTC

Rx denotes prescription; OTC, over the counter; BID, twice a day; QD, every day.  
\*Frequency and duration of treatment varies according to the type of tinea pedis.

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Each month, the members of The Family Practice Inquires Network answer questions with the best available evidence in a concise, reader-friendly format. Each answer is based on a standard minimum search of resources, including MEDLINE, the Cochrane Library, and InfoRetriever, and is then reviewed by 2 peer reviewers. Each item is graded for the level of evidence (<http://cebm.jr2.ox.ac.uk/docs/levels.html>). The collected Clinical Inquiries answers can be found at <http://www.jfponline.com> or <http://www.fpin.org>.

## What is the initial approach to the treatment of shoulder pain?

### EVIDENCE-BASED ANSWER

There is some limited evidence supporting the use of nonsteroidal anti-inflammatory drugs (NSAIDs) in the initial treatment of shoulder pain. There is no evidence in support of most other therapies, including intra-articular or subacromial corticosteroid injection, intra-articular NSAID injection, oral corticosteroid treatment, physiotherapy, ultrasound, heat or ice therapy, laser treatment, electrotherapy, and iontophoresis (Grade of recommendation: B, based on extrapolation from systematic reviews and randomized clinical trials with inconsistent and inconclusive results)

### EVIDENCE SUMMARY

Because of a lack of uniformity in the definition of shoulder disorders and a wide variation in outcomes assessed in clinical trials, there is limited opportunity to compare and pool the results of individual trials. Even when studies define the disorders and outcomes similarly, the heterogeneity of the interventions, timing of outcome assessment, inadequate reporting of results, and small sample sizes limit the inference of specific therapeutic recommendations for shoulder pain.

A recent Cochrane Review concluded that there is little evidence to either support or refute the efficacy of most common interventions for shoulder pain.<sup>1</sup> The pooled analyses of 2 studies of rotator cuff tendinitis suggested that NSAIDs may be superior to placebo in improving the range of abduction, but there was no significant weighted difference between pain scores.<sup>2,3</sup> Another randomized controlled trial<sup>4</sup> found 14-day treatment with oral NSAIDs superior to placebo for relieving acute shoulder pain (86% vs 56%; absolute risk reduction 30%; 95% confidence interval, 10%-50%).

A randomized single-blind study of primary care patients reported superiority of manipulative therapy over classic physiotherapy in the treatment of shoulder pain (70% vs 10% cure rate at 5 weeks).<sup>5</sup> Manipulative therapy as performed by general practitioners or physiotherapists included mobilization and manipulation of the upper spine and ribs, acromioclavicular joint, and the glenohumeral joint. Classic physiotherapy as performed by physiotherapists included only exercise therapy, massage, and physi-

cal applications. For the patients with synovial pain, intra-articular corticosteroid injection was superior to both manipulative therapy and classic physiotherapy (cure rates of 75% vs 40% and 20%, respectively, at 5 weeks), yet many primary care physicians may not have enough experience to specifically diagnose synovial pain.

### RECOMMENDATIONS FROM OTHERS

We identified no other published recommendations or guidelines from professional organizations.

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### CLINICAL COMMENTARY

Most ambulatory patients with primary nontraumatic shoulder pain have rotator cuff tendonitis. Mild, acute disease usually responds to initial rest from movements that aggravate the pain, followed by a gradual return to full activity as tolerated. Time remains a strong ally in this setting. I have found NSAIDs and corticosteroid injections helpful in reducing pain and improving range of motion, but only in the subacute and chronic forms of rotator cuff tendonitis and osteoarthritis. Physiotherapy, although of uncertain analgesic benefit, may minimize the muscular atrophy and loss of flexibility associated with joint injury. The studies above specifically address pain arising from the shoulder joint itself. Pain may also be referred to the shoulder from a remote site (as in atypical angina or other intrathoracic pathology). The initial management of shoulder pain requires consideration of such secondary causes as well.

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Details of the search strategies used for developing the Clinical Inquiries answers can be found on the *JFP* Web site at [www.jfponline.com](http://www.jfponline.com).