

Stress urinary incontinence: A closer look at nonsurgical therapies

This pervasive condition has spawned a host of treatments, from conservative measures like pelvic floor rehabilitation to cutting-edge modalities such as radiofrequency therapy. In this discussion, a panel of experts compares the less invasive options and offers pearls on evaluating and counseling patients and selecting appropriate treatments.

We know what it is: The involuntary loss of urine during activities that increase intra-abdominal pressure. And we know what it isn't: Rare. We even know how to treat stress incontinence, since it affects women of all ages and generally can be attributed to urethral hypermobility and/or intrinsic sphincter deficiency. But are we up-to-date on all the management options, both

tried and true and brand new? To address this question, OBG MANAGEMENT convened a panel of expert urogynecologists. Their focus was conservative therapies.

A wide range of options to preserve fertility

SAND: We are fortunate to have a number of very effective nonsurgical treatments for stress urinary incontinence (SUI). Why don't we begin by laying out the full complement of options? Dr. Davila, when a premenopausal woman presents to your center with SUI, what therapies do you offer if she is waiting to complete childbearing? And how do you counsel her?

DAVILA: We first try to determine what effect the incontinence is having so we can develop a suitable treatment plan. For example, if the patient leaks urine with minimal exercise, it may be more difficult to treat her than a woman who leaks only with significant exertion. It also may be more difficult to treat SUI in a woman for whom exercise is very important, compared with someone who exercises sporadically.

Fortunately, with the current options, it

OUR PANELISTS

- **Peter K. Sand, MD**, moderator of this discussion, is professor of obstetrics and gynecology at the Feinberg School of Medicine, Northwestern University, Evanston, Ill.
- **G. Willy Davila, MD**, is chairman, department of gynecology, Cleveland Clinic Florida, Weston, Fla.
- **Karl Luber, MD**, is assistant clinical professor, division of female pelvic medicine and reconstructive surgery, University of California School of Medicine, San Diego, and director of the female continence program at Kaiser Permanente, San Diego.
- **Deborah L. Myers, MD**, is associate professor of obstetrics and gynecology, Brown University School of Medicine, Providence, RI.

isn't necessary to do a full urodynamic evaluation and spend a lot of time and energy assessing the patient. We take a history in which we focus on behavioral patterns, looking especially at fluid intake. A high caffeine intake is particularly telling. Then we look at voiding patterns to make sure the patient is urinating regularly. A bladder diary is typically very helpful for that—and it doesn't need to be a full 7-day diary; a 3-day diary should suffice. If the patient is going to be treated nonsurgically, completion of a diary has significant educational value regarding fluid intake and voiding patterns.

Once we have assessed behavioral patterns, we do a physical exam to evaluate the neuromuscular integrity of the pelvis. If the patient has good pelvic tone—with minimal prolapse and the ability to perform an effective Kegel contraction of the pelvic floor muscles—she should do very well with physiotherapeutic or conservative means of enhancing pelvic floor strength. So behavior-modification strategies work very well for patients with mild stress incontinence. We typically begin with a trial of biofeedback-guided or self-directed pelvic floor exercises.

Patients with significant prolapse who leak very easily don't do as well with simple conservative therapies. Examples include a woman whose empty-bladder stress test suggests severe degrees of sphincteric incontinence with urinary leakage and patients who cannot contract their pelvic floor muscles—some women are simply unable to identify these muscles. Those are the patients we tend to test more extensively.

SAND: Dr. Myers, how do you treat these patients?

MYERS: A lot depends on physical exam findings. For example, for a cystocele, a vaginal continence ring may be useful.

If there is excellent support but the Kegel contractions are weak, I would probably look to pelvic floor therapy, which includes biofeedback, electrical stimulation,

TABLE 1
Drugs that affect stress urinary incontinence

WORSEN INCONTINENCE
Alpha blockers
• Prazosin (Minipress)
• Doxazosin (Cardura)
• Terazosin (Hytrin)
Diuretics
IMPROVE INCONTINENCE
Alpha agonists
• Ephedrine
• Phenylephrine
• Phenylpropanolamine
Mixed-effect agents
• Imipramine (Tofranil) (also anticholinergic)
Estrogens (local administration)

and other means of strengthening the pelvic floor muscles.

In addition, a number of medications can improve urethral resistance, and simple interventions such as limiting fluid intake and altering behavioral patterns are also useful.

I often will use multiple modalities. Basically, I do everything I can if the patient wants to avoid surgery because of future childbearing.

SAND: Dr. Luber, are your practice patterns different?

LUBER: The emphasis on medical interventions is entirely appropriate. Few things are as satisfying as helping a patient improve without surgery, especially when she expresses concerns about the need for an operation.

I believe in offering the patient a menu of nonsurgical choices. Women are often badly informed about their options, and I like to take some time to educate them once the basic evaluation is complete. Sometimes that can be difficult, but it is extremely helpful to take 5 or 10 minutes to thoroughly explain the cause of the incontinence, using diagrams if necessary. This gives them a better understanding of the nonsurgical approach.

I also try to reinforce use of vaginal sup-

port devices such as continence rings and pessaries, which are very helpful in both younger and older women. In addition, I emphasize the importance of pelvic muscle rehabilitation, giving verbal instructions, coaching the patient, and recommending a physical therapist when necessary.

SAND: At our center, we also offer people a full menu of treatment options and try to let them make an independent decision once they have the basic information. One could argue that it's difficult for patients to make educated decisions about different treatments, even with a small amount of data. Still, we talk with them about behavioral techniques and interventional devices.

We also discuss use of alpha-adrenergic agents (pseudoephedrine) and the tricyclic antidepressant imipramine, as well as electrical stimulation as an alternative to Kegel contractions with biofeedback. When the incontinence is exercise-induced, something as simple as a tampon in the vagina can sometimes be very effective, as Nygaard et al demonstrated.¹

Treating the postmenopausal woman

SAND: What about women of advanced age, beyond the reproductive years? How would you treat a patient over 65 if she elected not to have surgery?

LUBER: The pelvic floor is not an area that people exercise on a daily basis in normal activities, as we do our arms and legs. In addition, over the course of time—perhaps in combination with the denervation associated with vaginal birth—the pelvic floor of

mature women tends to become very atrophic and nonresponsive. I usually steer my elderly patients with poor pelvic floor recruitment and tone to biofeedback because they are unlikely to get a response to pelvic floor exercises done independently.

MYERS: I make it a point to offer conservative options initially to all patients. As you know, many older patients have other medical problems that render surgical therapy inadvisable. So I proceed with the menu we discussed earlier. I favor electrical stimulation for patients who are unable to do any type of Kegel squeeze. I think it's important for the patient to get an idea what a levator contraction feels like and, hopefully, learn to perform the exercise on her own.



It is possible to reduce incontinence episodes by 90% using biofeedback and electrical stimulation.

— Dr. Davila

Rehabilitating the pelvic floor: Electrical stimulation, physiotherapy, and moderation

SAND: I'm not a big fan of independent pelvic floor exercises without biofeedback, as studies at Duke some years ago showed very poor compliance, with only 10% of people staying on self-directed Kegel exercise therapy.² Roughly one third of those were actually doing a Valsalva maneuver instead of contracting their muscles—and that is destructive over time. So I discuss electrical stimulation as an option, as well as innervation using an electromagnetic chair.

MYERS: In our practice, if someone has an absent Kegel squeeze or only a 1 or 2 on a scale of 5, we will start her on electrical stimulation. Once those muscles have been educated and strengthened, we move to biofeedback. If a woman already has a strong Kegel squeeze, we tend to recommend biofeedback

first. I have not had any experience with the electromagnetic chair.

LUBER: I manage patients similarly. In our center, electrostimulation is reserved primarily for those patients who need to be “jump started”—who lack the ability to isolate and contract their pelvic floor muscles. Electrostimulation seems to help. Then they go on to more intensive biofeedback-assisted pelvic muscle rehabilitation.

DAVILA: Some years ago, our center compared voluntary Kegel contractions with electrically stimulated Kegel contractions at various frequencies and found that voluntary Kegel contractions are much stronger than stimulated ones.³

LUBER: We conducted a similar trial, with comparable findings.⁴

SAND: In the orthopedic area, people can have electrically stimulated contractions that are maximized until they are equal in intensity to voluntary contractions. Unfortunately, we can't do that for the pelvic floor due to limitations in the delivery system and the electrodynamics of the currents being used.

LUBER: To use an analogy from psychoanalysis, electrical stimulation is like a couch and the physiotherapist is like the psychiatrist. The couch doesn't do much good without the psychiatrist there. So we use electrical stimulation to help patients recruit those muscles—and we use it in conjunction with a physical therapist. Without the coaching and monitoring of the physical therapist, I don't think these patients are going to benefit as much from electrostimulation.

DAVILA: A number of years ago, my colleagues

TABLE 2**Recommended therapeutic agents**

DRUG	DOSAGE
STRESS INCONTINENCE	
Phenylpropanolamine (Dimetapp)	25-50 mg every 6 to 8 hours
Pseudoephedrine (Sudafed)	60 mg every 6 to 8 hours
Imipramine (Tofranil)	25-100 mg at bedtime
Estrogen intravaginal cream (Estrace, Premarin)	2 g twice weekly
URGE INCONTINENCE	
Oxybutynin	
• Ditropan	2.5-5 mg 3 times a day
• Ditropan XL	5-15 mg daily
• Oxytrol (transdermal)	3.9 mg patch twice weekly
Flavoxate (Urispas)	100-200 mg 3 or 4 times a day
Tolterodine (Detrol LA)	4 mg daily
Hyoscyamine (Levbid)	0.375 mg 2 times a day
Imipramine (Tofranil)	25-100 mg at bedtime
Estrogen intravaginal cream (Estrace, Premarin)	2 g twice weekly
NOCTURIA	
Desmopressin (DDAVP)	0.1-0.4 mg at bedtime
OVERFLOW INCONTINENCE	
Bethanechol (Urecholine)	20-100 mg every 6 hours for underactive detrusor causing overflow incontinence

and I published a paper describing a multimodality approach to pelvic floor muscle rehabilitation using biofeedback and electrical stimulation. We showed that it is possible to reduce incontinence episodes by 90%.⁵ In a motivated patient, that reduction can be maintained.

I can't agree enough about the importance of a physiotherapist, whether that happens to be a physical therapist or your nurse or someone else who takes the time to instruct the patient on how to isolate and contract the pelvic floor muscles. It really takes a team of people to address pelvic floor dysfunction, so that's where we direct our focus.

SAND: Any other tips to give patients about pelvic floor rehabilitation?

LUBER: Yes. It's a good idea to stress the importance of moderation. If a sedentary person suddenly decided to rehabilitate the muscles of her

arms and set about doing 100 curls with 40-lb weights, the next day she would barely be able to brush her teeth; her arm function would be worse than it was on day 1. And if one of our patients decided to focus on the muscles of her pelvic floor and began with a similarly overzealous program, she might actually report that her stress incontinence had worsened. So we do need to warn patients that the pelvic floor muscles can become extremely debilitated and advise them to start rehabilitation slowly.

MYERS: I agree. Otherwise muscle fatigue develops.

SAND: Let's talk a few moments about pelvic floor rehabilitation following surgery. Do you recommend it to your patients—or is it only useful as an alternative or prelude to surgery?

DAVILA: I think it is very important. Once an incontinence operation is finished, there is a tendency to think the job is done. That is an incorrect attitude. We see the patient at 3 months, 6 months, and yearly to make sure she is doing her Kegels. While the importance of postoperative Kegel exercises and biofeedback has not been studied in depth, I think they are key to maintaining the success of our surgical interventions.

MYERS: I agree. I think it's a major weakness of our field that we don't promote pelvic floor exercises postoperatively. After orthopedic procedures, physical therapy frequently is used, since there is an understanding that the muscles as well as the ligaments need to be rehabilitated. This concept needs to be addressed in pelvic floor reconstructive surgeries as well.

SAND: But we have absolutely no data.

MYERS: We should start to obtain it.

SAND: One of the things that concerns me greatly about postoperative Kegels is the fact that patients don't do them properly. If a woman is doing the Valsalva maneuver or increasing her intra-abdominal pressure instead of contracting the levators, she may actually undermine the surgery rather than promote its effect. That's the other side of using Kegel exercise therapy postoperatively.

DAVILA: But at the 6- or 8-week visit, you simply do an exam to see if she can perform a Kegel properly. I tell my patients, "We're going to do the best surgery we can do. Then you have to take care of your repair." That means avoiding straining and limiting

lifting to 5 lb or so during the healing phase, doing pelvic floor exercises after 6 weeks, and remaining careful about lifting on a long-term basis.

If a patient cannot contract her pelvic floor muscles at the postoperative visit, we send her to our physiotherapist. Frequently, 1 or 2 visits are enough for the patient to learn to perform Kegels.

I do agree that if the patient is performing the Valsalva maneuver instead of contracting her muscles, she can do more damage than good. But proper patient selection and instruction should take care of that.

MYERS: If a patient is doing the Valsalva maneuver every time I ask her to do a Kegel, I tell her not to do them at all. I say: "You are going to need additional help with this for the next 6 to 8 weeks. If you want to maximize your muscle strength, this is something that will be for your benefit."



I don't see the justification for getting all these patients to do pelvic floor therapy without good data.

— Dr. Sand

CONTINUED

As I said before, I think pelvic floor rehabilitation is a very important component of incontinence treatment. Some investigators have emphasized ligament supports and fascial supports to control incontinence, and other investigators emphasize muscular support. It is probably a combination of both.

SAND: I have a different view. Although I would like to believe that stabilizing the pelvic floor will help protect the connective-tissue supports or the “imitation” supports we have instituted surgically, I don’t see the justification for getting all these patients to do pelvic floor therapy without good data demonstrating that fact.

LUBER: But I think we all would agree that simply resupporting a patient’s urethra is unlikely to re-create the continence mechanism that is compromised.

For example, if we assessed urethral support in 100 parous women, 70% to 80% would have what we call hypermobility, but probably only 15% would have stress incontinence.⁶ So there is something beyond hypermobility that causes incontinence. Yet our surgical enterprises focus exclusively on recreating urethral support. One could argue that, since the sling creates support circumferentially, it is more dynamic. Still, it does not address the neuromuscular component.

When an individual undergoes knee surgery, it is almost intuitive that the muscular support adjacent to the destabilized knee needs to be strengthened in addition to the surgery. So, regardless of the absence of data on the role of pelvic floor rehabilitation in conjunction with surgery, I would stress the importance of

helping these patients maintain or improve their pelvic floor tone.

Occlusive devices: Effective yet poorly received

SAND: Are occlusive devices a useful nonsurgical option?

LUBER: A number of devices have become available through the years but have had fairly short half-lives on the market. I think that is because patients often are hesitant to put something in their urethra on a daily basis. That may change in the future, but in our patient population, it still appears to be the rule.

It isn’t clear why women seem to be more comfortable with intravaginal devices than urethral occlusive devices. I suspect it is because many women have had some experience with tampons or diaphragms, so a

pessary is not such a foreign concept as urethral occlusive devices seem to be.

MYERS: That has been our experience as well. Patients even resist external obstructive devices. I was surprised at the poor reception the “patch” received.

DAVILA: We have all participated in clinical trials of occlusive devices. In that scenario, patients do pretty well, as long as they are being thoroughly monitored and followed. When it comes to actual usage, however, patients are not as successful as you might expect them to be. So your comments are absolutely correct.

Pharmacologic agents

DAVILA: When it comes to conservative therapy early in the treatment process, the type of incontinence may not be as impor-



Simply resupporting a patient’s urethra is unlikely to re-create the continence mechanism that is compromised.

— Dr. Lubert

tant as it is with surgery. The agents we are discussing may bring about improvement in women with stress or urgency symptoms. But as you move beyond first-stage therapies, you need to delve a bit further into the history to determine whether symptoms are primarily urgency-related or stress-related in order to avoid prescribing a medication that may not be effective for the patient's type of incontinence (TABLES 1 and 2).

SAND: That's an important point. What pharmacologic agents do you use for stress incontinence? And what developments do you foresee?

DAVILA: I frequently encounter the following scenario: A woman with stress incontinence comes in for her initial visit and reports that she is taking Detrol (tolterodine tartrate) or Ditropan (oxybutynin chloride). The first thing I do is tell her that this agent is not the appropriate medicine for her symptoms. Unfortunately, many clinicians are not aware of the differences between stress and urge incontinence. Thus, they may prescribe the wrong medication for the patient. Since medications for overactive bladder (urge incontinence) are widely available, the scenario just mentioned is quite common.

MYERS: I offer patients the tricyclic antidepressant imipramine, which is excellent for people with incontinence symptoms. Imipramine has anticholinergic properties, so it helps urgency symptoms but also improves urethral resistance—consequently, it can improve stress incontinence as well.

DAVILA: Duloxetine is a new antidepressant that has been widely studied.⁷ By blocking the

reuptake of serotonin and norepinephrine in the spinal cord, it increases the activity of the pudendal nerve, which in turn stimulates the urethral sphincter—thus reducing the leakage of urine. Where this drug will ultimately fit remains unclear, however.

Although the data show an improvement in SUI compared with placebo, imipramine or duloxetine certainly doesn't equal the effects of surgical therapy or bulking agents.⁸ So perhaps it will be used for mild stress incontinence or as an adjunct for the patient who continues to experience leakage after surgical therapy. Other alpha agonists—besides pheny propanolamine—are being studied as we speak, but we do

not know whether their side effects will outweigh their potential benefit. If these agents pass the test, then we may have additional drugs in the near future. ■



Imipramine has anticholinergic properties, so it helps urgency symptoms but also improves urethral resistance.

— Dr. Myers

REFERENCES

1. Nygaard I, DeLancey JOL, Arnsdorf L, Murphy E. Exercise and incontinence. *Obstet Gynecol.* 1990;75:848-851.
2. Bump RC, Hurt WG, Fantl JA, Wyman JF. Assessment of kegel pelvic muscle exercise performance after brief verbal instruction. *Am J Obstet Gynecol.* 1991;165:322-327.
3. Bernier F, Jenkins P, Davila GW. Does functional electrical stimulation elicit a pelvic floor muscle contraction? Presented at the American Urogynecologic Society Meeting in Tucson, Ariz, 1997.
4. Luber KM, Wolde-Tsodik G. The efficacy of functional electrical stimulation in treating genuine stress incontinence. A randomized clinical trial. *NeuroUrol Urodyn.* 1997;16:543-551.
5. Davila GW, Bernier F. Multimodality pelvic physiotherapy treatment of urinary incontinence in adult women. *Int Urogynecol J.* 1995; 6:187-194.
6. Walters MD, Jackson GM. Urethral mobility and its relationship to stress incontinence in women. *J Reprod Med.* 1990;35:777-784.
7. Norton PA, Zinner NR, Yalcin I, Bump RC. Duloxetine versus placebo in the treatment of stress urinary incontinence. *Am J Obstet Gynecol.* 2002;187:40-48.
8. Neimark M, Davila GW. New bulking agents for the treatment of ISD: the quest for permanence. *Contemp Urol.* 2002;3:34-48.

The authors report no financial relationship with any companies whose products are mentioned in this article.