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Treatment of female OAB Conservative management

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Management of UI in women

Conservative treatment

Pharmacological treatment

Surgical treatment

- Lifestyle interventions
- Physical therapies
- Scheduled voiding regimens
- Complementary therapies
- Anti-incontinence devices
- Supportive rings/pessaries
- Pads/catheters

Wilson PD, Hay-Smith J, Nygaard I, et al. (2005). Adult conservative management. In: Abrams P, Cardozo L, Khoury S, Wein A, eds. Incontinence, 3rd ed. Paris: Health publications Ltd.



• First line of treatment for patients with UI (severe UI?)

Management of OAB in women

Conservative treatment

Pharmacological treatment

Surgical treatment

- Lifestyle interventions
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Lifestyle interventions

 OAB is believed to be associated with a number of risk factors, some of which might be considered modifiable.



Lifestyle factors

- Diet
- Fluid intake
- Caffeine
- Obesity
- Smoking
- Constipatior
- Lifting activi
- Level of phy



Diet

- Some dietary factors may increase the risk of developing OAB.
- Is there the association between the intake of certain foods, energy, minerals and vitamins and the 1 year incidence of OAB?
- Certain quantities of some foods may be associated with:
 - reduced risk of new-onset OAB (chicken, vegetables, bread, protein, vitamin D and potassium)
 - an **increased** risk of new-onset OAB (carbonated drinks)

Dallosso HM, McGrother CW, Matthews RJ, et al. The association of diet and other lifestyle factors with overactive bladder and stress incontinence: A longitudinal study in women. *BJU International* 2003;92(1):69–77.

Dallosso HM, McGrother CW, Matthews RJ, et al. Nutrient composition of the diet and the development of overactive bladder: A longitudinal study in women. *Neurourology and Urodynamics* 2004;23(3):204–10.







No association between alcohol use and urgency.

Nuotio M, Jylha M, Koivisto A-M, et al. Association of smoking with urgency in older people. *European Urology* 2001; 40(2): 206–12.

• There is no evidence in relation to the effects of modifying these factors.

Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova ,L.C. Berghmans, et al. European Association of Urology 2015.

NICE. Urinary incontinence: The management of urinary incontinence in women. London: NICE. 2013.



Fluid intake

- Modification of fluid intake (particularly restriction), is a strategy commonly used by women with UI to relieve symptoms.
- There is conflicting evidence on whether fluid modification changes symptoms of UI and QoL.

Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova ,L.C. Berghmans, et al. European Association of Urology 2015.

NICE. Urinary incontinence: The management of urinary incontinence in women. London: NICE. 2013.



Caffeine reduction

- An increased caffeine intake may be associated with OAB.
- Reduction of caffeine intake does not improve UI.
- Reduction in caffeine intake may improve symptoms of urgency and frequency.

Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova ,L.C. Berghmans, et al. European Association of Urology 2015.

NICE. Urinary incontinence: The management of urinary incontinence in women. London: NICE. 2013.



Obesity and weight loss

- There is evidence that the prevalence of UUI increases proportionately with rising body mass index.
- Weight loss (>5%) in obese women improves UI.

Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova ,L.C. Berghmans, et al. European Association of Urology 2015.

NICE. Urinary incontinence: The management of urinary incontinence in women. London: NICE. 2013.



Constipation



- There is strong associations between constipation and OAB.
- There is no evidence that treatment of constipation improves UI.

Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova ,L.C. Berghmans, et al. European Association of Urology 2015.

NICE. Urinary incontinence: The management of urinary incontinence in women. London: NICE. 2013.



Smoking

- Smoking is associated with an increased risk of OAB.
- There is no evidence relating to smoking cessation in the management of these symptoms.

Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova ,L.C. Berghmans, et al. European Association of Urology 2015.

NICE. Urinary incontinence: The management of urinary incontinence in women. London: NICE. 2013.



Scheduled voiding regimens

- Involve an individual learning new patterns of response or re-establishing previously learnt behaviour to fit in with what is considered usual.
 - Bladder training
 - Habit training
 - Timed voiding
 - Prompted voiding







 Bladder training: is a program with gradually progressive voiding intervals

- Habit training: is a toileting schedule matched to the individual's voiding pattern based on an their voiding diary
- Timed voiding: is a fixed voiding schedule that remains unchanged over the course of treatment
- Prompted voiding: primarily used in institutionalized settings, to teach people to initiate their own toileting through request for help

Abrams P, Cardozo L, Khoury S, Wein A. Incontinence, 5th International Consultation on Incontinence. 5th ed. Paris (2012): Health publications Ltd. 2013.

BT Is it effective?

- Systematic reviews on the effect of **BT** compared to **standard** care confirming that <u>BT is more effective than no treatment</u> in improving UI.
- The addition of **BT** to **anticholinergic** therapy seems to confer <u>no additional effect</u> apart from the <u>reduction of frequency and</u> <u>nocturia.</u>

Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova ,L.C. Berghmans, et al. European Association of Urology 2015.

Abrams P, Cardozo L, Khoury S, Wein A. Incontinence, 5th International Consultation on Incontinence. 5th ed. Paris (2012): Health publications Ltd. 2013.

Shamliyan T, et al. Nonsurgical Treatments for Urinary Incontinence in Adult Women: Diagnosis and Comparative Effectiveness [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2012 Apr. Report No.: 11(12)-EHC074-EF. AHRQ Comparative Effectiveness Reviews.

Imamura M, et al. Systematic review and economic modelling of the effectiveness and costeffectiveness of non-surgical treatments for women with stress urinary incontinence. Health Technol Assess 2010 14(40): p. 1-188, iii-iv.



- Whatever the method of training used, any benefit of BT on UI is likely to be of short duration unless the BT program is practised repeatedly.
- The ideal form or intensity of a BT program for UI is unclear.
- No adverse events have been reported with BT.
- Biofeedback combined with BT increased continence rates and improved MUI.



- Symptomatic improvement was more common amongst those participants on anticholinergic drugs as compared to BT alone.
- Augmentation of **BT with anticholinergics** was also associated with <u>more</u> improvements than BT alone.

Rai BP, Cody JD, Alhasso A, Stewart L. Anticholinergic drugs versus non-drug active therapies for nonneurogenic overactive bladder syndrome in adults. *Cochrane Database of Systematic Reviews* 2012, Issue 12.

• There is a lack of consistency in BT protocols used in clinical practice.

Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova ,L.C. Berghmans, et al. European Association of Urology 2015.

BT protocol



An outpatient BT protocol:

- an initial voiding interval should begin at 1 hour at waking hours (based on tolerance);
- it could be increased by 15-30 minutes per week;
- the aim is eventually to be able to have
 2-3 hours between voids.

Pelvic floor muscle training



• PFMT is used to improve function of the pelvic floor, improving urethral stability.

Biological rationale for PFMT for urge UI

- In 1975 Godec et al. observed that a detrusor muscle contraction can be inhibited by a PFM contraction, **induced by ES.**
- In 1985 Burgio et al. demonstrated that a detrusor contraction can be inhibited by a voluntary PFM contraction.

Godec C, Cass AS, Ayala GF, Bladder inhibition with functional electrical stimulation. Urolog. 1975; 6(6): 663-6.

Burgio KL, Whitehead E, Engel BT. Urinary incontinence in the elderly. Bladder-sphincter biofeedback and toileting skills training. Ann Intern Med. 1985; 103(4): 507-15.



 During urine storage, bladder distension produces lowlevel vesical afferent firing
 → stimultes the pudendal nerve outflow to the external urethral sphincter
 → increasing intra urethral pressure

a "guarding reflex" for continence

- Barington's micturition centre's excitatory loop switches on when bladder pressures are between 5-25 mmHg (inhibitory loop is active above 25 mmHg)
- Inhibition involves an automatic increase in tone for PFM and the urethral striated muscle.

Morrison JF. The excitability of the micturition reflex. Scand J Urol Nephrol Suppl. 1995; 175: 21-5.

de Groat WC. A neurologic basis for the overactive bladder. Urology. 1997 Dec;50(6A Suppl):36-52; discussion 53-6.



- Voluntary PFM contraction may be used to treat UUI.
- Urge suppression strategy combined with PFMT – behavioural training.
- There is some evidence that improving pelvic floor function may inhibit bladder contraction in patients with OAB.

Berghmans B, et al. Efficacy of physical therapeutic modalities in women with proven bladder overactivity. Eur Urol 2002 41(6): 581-7.



PFMT Is it effective?

- Sistematic reviews comparing PFMT with no treatment or inactive controls.
- PFMT is better than no treatment, placebo drug, or inactive control treatments for women with SUI, <u>UUI, MUI</u>.

Dumoulin C, Hay-Smith J, Habée-Séguin GM, Mercier J. Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women: a short version Cochrane systematic review with meta-analysis. Neurourol Urodyn. 2015; 34 (4): 300-8.

Dumoulin C, Hay-Smith EJ, Mac Habée-Séguin G. Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women. Cochran Database Syst Rev. 2014 ; 14;5:CD005654.



- The effect in MUI is lower than in women with pure SUI.
- The treatment effect seems greater in women, who participate in a supervised PFMT program for at least 3 months.
- It seems likely that treatment effect will be enhanced if contraction is confirmed prior to training.

Dumoulin C, Hay-Smith J, Habée-Séguin GM, Mercier J. Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women: a short version Cochrane systematic review with meta-analysis. Neurourol Urodyn. 2015; 34 (4): 300-8.

Dumoulin C, Hay-Smith EJ, Mac Habée-Séguin G. Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women. Cochran Database Syst Rev. 2014 ; 14;5:CD005654.

Shamliyan T, et al. Nonsurgical Treatments for Urinary Incontinence in Adult Women: Diagnosis and Comparative Effectiveness [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2012 Apr. Report No.: 11(12)-EHC074-EF. AHRQ Comparative Effectiveness Reviews.





PFM contraction

Squeeze around pelvic openings and

 an inward lift (in cranial direction)

Kegel (1952) Stress incontinence and genital relaxation, a nonsurgical method of increasing the tone of sphincters and their supporting structures. Clinical symposia 2: 35-51.



Bø K, Lilleås F, Talseth T, Hedland H. Dynamic MRI of the pelvic floor muscles in an upright sitting position. Neurourol Urodyn. 2001;20(2):167-74.



Coccygeal movement





Differences between rest and
contractionstraining15.1 degrees (1-38)12.9 degrees (1-37)



Adding PFMT to active treatments?

 <u>Insufficient evidence</u> to state whether or not there were additional effects by adding PFMT to other active treatments when compared with the same active treatment alone for UUI and MUI in women.

Ayeleke RO, Hay-Smith EJ, Omar MI. Pelvic floor muscle training added to another active treatment versus the same active treatment alone for urinary incontinence in women. Cochrane Database Syst Rev. 2015 Nov 3;11:CD010551.

Ayeleke RO, Hay-Smith EJC, Omar MI. Pelvic floor muscle training added to another active treatment versus the same active treatment alone for urinary incontinence in women. Cochrane Database of Systematic Reviews, 2013, Issue 11.



 High-intensity **PFMT** combined with **BT** is <u>more effective</u> than BT alone in the short term for treating UUI and MUI.

Kaya S, Akbayrak T, Gursen C, Beksac S. Short-term effect of adding pelvic floor muscle training to bladder training for female urinary incontinence: a randomized controlled trial. Int Urogynecol J. 2015; 26(2): 285-93.

Long-term outcome of PFMT?

- The long-term success of PFMT varied between 41% and 85%.
- Surgery rates at long term varied between 4.9% and 58%.
- Short-term benefits of intensive PFMT are not maintained at 15-year follow-up.

Bo K, et al. Lower urinary tract symptoms and pelvic floor muscle exercise adherence after 15 years. Obstet Gynecol 2005; 105(5): 999-1005.

Bø K, Hilde G. Does it work in the long term? A systematic review on pelvic floor muscle training for female stress urinary incontinence. Neurourol Urodyn 2013; 32(3): 215-23.

The effects of different approaches to PFMT?

- Cochrane review (21 trials)
- Existing evidence was insufficient to make any strong recommendations about the best approach to PFMT.

Hay-Smith EJC, Herderschee R, Dumoulin C, Herbison GP. Comparisons of approaches to pelvic floor muscle training for urinary incontinence in women. *Cochrane Database of Systematic Reviews* 2011, Issue 12.

 Women receiving regular (e.g. weekly) supervision were more likely to report improvement than women doing PFMT with little or no supervision.





PFMT protocol

- 8-12 slow-velocity, close-to-maximum contractions
- holding time 6-8 s
- 3-4 fast contractions on top of the holding period

Force

Time

Time

- 3 sets per day
- 3-4 times per week
- more than 5 months











PFMT with biofeedback

Biofeedback is a common adjunct used along with PFMT to help teach a voluntary PFM contraction or to improve training performance.









PFMT with biofeedback Is it effective?

• No additional benefit!



Berghmans LC, Frederiks CM, de Bie RA, et al. Efficacy of biofeedback, when included with pelvic floor muscle exercise treatment, for genuine stress incontinence. *Neurourol Urodyn* **1996**;15:37-52.

Mørkved S, Bo K, Fjřrtoft T. Effect of adding biofeedback to pelvic floor muscle training to treat urodynamic stress incontinence. *Obstet Gynecol* **2002**;100:730-39.



 Systematic reviews comparing PFMT with and without biofeedback - adding biofeedback was beneficial.

Herderschee R, Hay-Smith EJC, Herbison GP, Roovers JP, HeinemanMJ. Feedback or biofeedback to augment pelvic floor muscle training for urinary incontinence in women. *Cochrane Database of Systematic Reviews* **2011**, Issue 7.

Greer JA, Smith AL, Arya LA. Pelvic floor muscle training for urgency urinary incontinence in women: a systematic review. Int Urogynecol J **2012**; 23(6): 687-97.

PFMT and drug treatment

- The effects of adding **PFMT** to **tolterodine** compared with tolterodine alone was considered in women with frequency, urgency and UUI.
- After 6 month treatment, <u>no significant</u> differences were observed between tolterodine plus PFMT versus tolterodine alone in changes in any outcome.



NICE. Urinary incontinence: The management of urinary incontinence in women. London: NICE. 2013.

Vaginal cones

 Vaginal cones are commonly used to help women train their PFM to improve UI.







- A Cochrane review (23 trials)
- Some evidence that vaginal cones are <u>better</u> than no active treatment in women with UI and may be of <u>similar</u> <u>effectiveness</u> to PFMT and ES.

Electrical stimulation



Electrical stimulation-cont.

- Either vaginal or extracorporeal.
- Is often used to assist women who cannot initiate contractions to identify their PFM.
- Is also used in patients with OAB and UUI, for detrusor inhibition.





Berghmans LC, et al. Conservative treatment of urge urinary incontinence in women: a systematic review of randomized clinical trials. BJU Int 2000 85(3): p. 254-63.



Electrical stimulation Is it effective?

• Tibial-nerve and intravaginal stimulation have shown effectiveness in treating urge UI.

Schreiner L, Santos TG, Souza AB, Nygaard CC, Silva Filho IG. Electrical stimulation for urinary incontinence in women: a systematic review. Int Braz J Urol. 2013; 39(4): 454-64.

• There is inconsistent evidence whether ES is effective in improving UI compared to sham treatment or adds any benefit to PFMT.

Ayeleke RO, Hay-Smith EJ, Omar MI. Pelvic floor muscle training added to another active treatment versus the same active treatment alone for urinary incontinence in women. Cochrane Database Syst Rev. 2015 Nov 3;11:CD010551.

Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova ,L.C. Berghmans, et al. European Association of Urology 2015.

NICE. Urinary incontinence: The management of urinary incontinence in women. London: NICE. 2013.

- Limited evidence might suggest that ES is a better option in patients who are refractory to anticholinergic therapy.
- <u>More people</u> reported an improvement when using ES than an **anticholinergic drug**.
- This was only <u>significant</u> in one trial for one type of ES, **percutaneous posterior tibial nerve stimulation**.

Rai BP, Cody JD, Alhasso A, Stewart L. Anticholinergic drugs versus non-drug active therapies for nonneurogenic overactive bladder syndrome in adults. *Cochrane Database of Systematic Reviews* 2012, Issue 12.

• ES had been compared to <u>oxybutynin</u> in patients with UUI, showing similar efficacy.

Berghmans B, et al. Electrical stimulation with non-implanted electrodes for urinary incontinence in men. Cochrane Database Syst Rev. 2013.

Magnetic stimulation

- MStim has been promoted as an alternative to electrical stimulation.
- No electricity, but only magnetic flux enters the body. (Galloway, 1999)
- The conduction of magnetic energy is unaffected by tissue impedance, creating a theoretical advantage in its clinical application compared to ES. (Goldberg, 2000)
- Sacral roots or pudendal nerves can be magnetically stimulated without the discomfort (or the inconvience of a vaginal probe).

Galloway NT, El-Galley RE, Sand PK, Appell RA, Russell HW, Carlan SJ. Extracorporeal magnetic innervation therapy for stress urinary incontinence. Urology. 1999; 53: 1108-11.

Goldberg RP, Sand PK. Electromagnetic pelvic floor stimulation: applications for the gynecologist. Obstet Gynecol Surv. 2000; 55: 715-20. Review





Mechanisms of action?

- MStim might suppress detrusor overactivity through:
 - activation of pudendal nerve afferents blocking parasympatetic detrusor motor fibres at the spinal arc,
 - activation of inhibitory hypogastric sympathetic neurons,
 - combination of both.

- Stimulation of symphatetic fibres maintaining smooth muscle tone within the intrinsic urethral sphincter.
- Modulation of pudendal nerve afferent branches stimulating an inhibitory spinal reflex at the S3 nerve root.

Lindström S, Fall M, Carlsson CA, Erlandson BE. The neurophysiological basis of bladder inhibition in response to intravaginal electrical stimulation. J Urol. 1983; 129(2): 405-10.

Magnetic stimulation Is it effective?



- The systematic review (17 trials) examined the effectiveness of PFMT with or without biofeedback, ES, MStim, and vaginal cones for the treatment of UUI.
- <u>Significant improvement</u> in UUI was found for <u>all</u> physiotherapy techniques <u>except</u> vaginal cone therapy.

Greer JA, Smith AL, Arya LA. Pelvic floor muscle training for urgency urinary incontinence in women: a systematic review. Int Urogynecol J 2012; 23(6): 687-97.

• No evidence of effectiveness was found.

NICE. Urinary incontinence: The management of urinary incontinence in women. London: NICE. 2013.

Lucas M, EAU Guidelines on Urinary Incontinence. In: EAU Guidelines, edition presented at the 29th EAU Annual Congress, Stockholm 2014.

Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova, L.C. Berghmans, et al. European Association of Urology 2015.







- There is no firm evidence to support the benefits of using MStim in the management of UI, although short-term outcomes suggests that MStim improves UI symptoms in women.
- The applicability of MStim as a treatment option for UI remains uncertain until larger, high-quality trials with longer follow-up periods are conducted.

Complementary therapies

- Relaxation, hypnosis, acupuncture, herbal medicines ...
- There is limited and poor-quality evidence available.



Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova ,L.C. Berghmans, et al. European Association of Urology 2015.

Continence products

- Some women may not wish to pursue active interventions for UI.
- Absorbent products, urinals and toileting aids are an alternative management option.
- Women must be fully aware of all possible treatment options before adopting this course of action.
- The use of these products should be considered for women awaiting definitive treatment.

Guidelines on Urinary Incontinence. M.G. Lucas , D. Bedretdinova ,L.C. Berghmans, et al. European Association of Urology 2015.

Abrams P, Cardozo L, Khoury S, Wein A. Incontinence, 5th Interbational Consultation on Incontinence. 5th ed. Paris (2012): Health publications Ltd. 2013.









Conclusions?



Recomnendations

Recommendation 1



- Conservative management should be the first line of treatment for women with AOB.
- Conservative management:
 - is effective
 - simple and readily available
 - has minimal side effects
 - does not compromise future, more invasive procedures.

Recommendation 2 Lifestyle interventions



- Encourage **obese** women to lose weight.
- Women with abnormally high or abnormally low fluid intake should be advised to modify their fluid intake appropriately.
- Include advice related to reducing the intake of **coffee** and **carbonated beverages**.







Recommendation 3 Bladder training



- BT is effective for improvement of UI in women.
- Offer BT as a first-line therapy to women with urgency, UUI and MUI.



Recommendation 4 Pelvic floor muscle training

- Offer supervised intensive PFMT, lasting at least 3 months.
- Offer reasonably frequent appointments during the training period.
- Do not use biofeedback as a routine part of PFMT.



Recommendation 5 Electrical stimulation



• Consider offering ES as an adjunct to behavioural therapy in women with UUI.

Recommendation 6 Magnetic stimulation



- Do not offer MStim for the treatment of OAB in women. (EAU, 2015)
- The applicability of MStim as a treatment option for UI remains uncertain. (Lim et al, 2015)

Recommendation 7 Complementary therapies

• Do not recommend complementary therapies for the treatment of OAB.



Recommendation 8 Continence products

 Absorbent products, hand held urinals and toileting aids should not be considered as a treatment for UI.



Thank you for your attention

