

Non-operative methods in the treatment of female genuine stress incontinence of urine

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Summary

The use of three different non-operative techniques for the treatment of female genuine urinary stress incontinence has been assessed by objective means.

One hundred and four patients complaining of stress incontinence were allocated at random to four groups. Sixty-five per cent of patients treated with pelvic floor exercises were significantly improved after 3 months; interferential therapy was effective in 32 per cent of cases. Oestrogen treatment was initially beneficial in 12 per cent of patients but recurrence of symptoms occurred soon after stopping the treatment.

The control group of patients did not show any significant changes according to perineal pad weight testing, which was used for the objective assessment of incontinence. Long term follow up of these patients, after 9 months from commencing treatment still showed that pelvic floor exercises are the most effective non-surgical treatment for this condition.

INTRODUCTION

URINARY stress incontinence is considered the commonest cause of incontinence in women. An incidence between 40 and 60 per cent among all other causes of incontinence has been reported by Arnold *et al.* (1973) and Moolgaoker *et al.* (1972). Conservative measures are available for the treatment of this condition. Brown (1977) recommended that non-operative techniques should be tried initially as they are frequently helpful. Furthermore, surgery may be inappropriate due to an unfit or unwilling patient. Kegel (1951) reported that stress incontinence could be benefited by simple exercises designed to strengthen the pelvic floor. Montgomery and Shepherd (1983) and Harrison (1983) noted that success following physiotherapy depended on the instructor's enthusiasm and knowledge, and on the patient's co-operation and motivation. Interferential therapy of a tetrapolar nature (Thom, 1983) has been described by Dr Hans Nemec working in Vienna. It is only

recently that this method has gained international support.

There is conflicting data in the literature regarding the use of oestrogens for the treatment of urinary stress incontinence due to different doses used, routes of administration and methods of investigations (Wilson, 1984).

PATIENTS AND METHODS

One hundred and four female patients with a urodynamically proved diagnosis of genuine urinary stress incontinence were included. These patients were allocated at random to four different groups. The groups were comparable regarding age, weight and parity. The severity of incontinence was assessed by weighing perineal pads which were worn while the patients were asked to perform a certain exercise routine. This test was initially referred to by Caldwell (1974) and was subsequently described by Sutherst *et al.* (1981).

All patients who entered the study were seen and assessed clinically by one investigator. Routine filling and voiding cystometry with urethral pressure studies both at rest and with stress were carried out before and after treatment. We used the fluid perfusion technique as described by Toews (1967) to measure urethral pressure.

The first group of patients ($n=26$) received a course of pelvic floor exercises by a physiotherapist with a special interest in incontinence. The patients were taught to contract their pelvic floor muscles by using the index and middle fingers of their right hand smeared with a lubricating cream. The fingers are held apart within the vagina and the patient is asked to contract her pelvic floor by squeezing the fingers together. After teaching the patient to exercise the correct muscles, a programme of regular exercises then commenced. They were asked to draw their pelvic floor muscles together for 5 seconds and repeat the manoeuvre

five times every hour. The patients were seen weekly during their treatment by the physiotherapist to monitor their progress.

The second group of patients ($n=25$) received a course of interferential therapy for pelvic floor stimulation. This consisted of 10 treatment sessions (one session per week) at the physiotherapy department. An interferential current of between 0–100 Hz was passed between the electrodes. The intensity was adjusted according to the patient's tolerance and was given for 20 min each week for 10 weeks.

The third group of patients ($n=24$) received treatment in the form of vaginal cream containing conjugated equine oestrogens (Premarin, Ayerst Laboratories). Patients allocated to this group inserted 2 g of cream with an applicator each night for a 12 week period. This dose of cream contained 1.25 mg of conjugated equine oestrogens and is the lowest dose recommended. Oestrogens were given by this method as it has been shown that the absorptive capacity of the vaginal epithelium closely resembles that of the gastro-intestinal tract (Whitehead *et al.*, 1978).

The fourth group of patients ($n=25$) were considered as a control group and received no treatment.

Patients with a complicated history of incontinence such as a history of fistula or more than one previous surgical procedure for correction of incontinence were excluded. We also excluded from the trial patients with a major degree of prolapse and those who had an absolute contraindication for oestrogen treatment. The perineal pad weighing test and urethral pressure studies were repeated 3 months after commencing the treatment. A questionnaire analysis was also carried out after 9 months and the results from 100 patients were available for analysis.

RESULTS

On repeat pad testing, patients who had a negative result after previously being positive were considered as being cured. Those who had more than

50 per cent reduction in their perineal pad weights were considered as being significantly improved. Seventeen patients in the group treated with pelvic floor exercises, eight patients in the group treated with interferential stimulation and three patients in the third group treated with oestrogens were improved or cured at the end of 3 months (Table).

There was a reduction in perineal pad weights in the first and second groups of patients ($P<0.02$) but no change was demonstrated in the patients treated with oestrogens or the control group (Figure 1). Some increase in the maximum urethral closure pressure during rest was noticed in all three treatment groups but this increase was greatest in

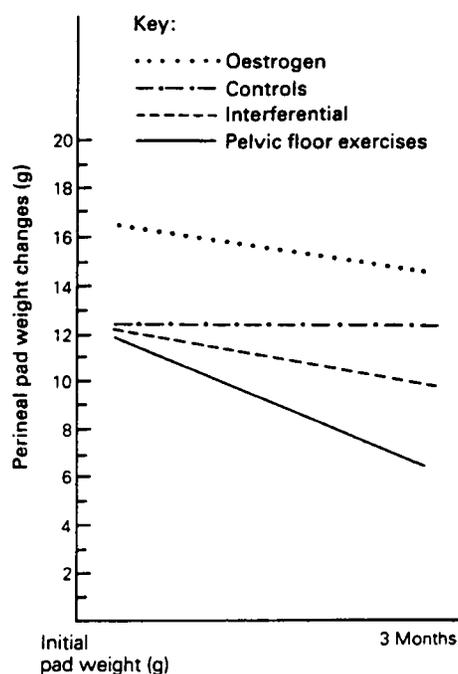


Figure 1. Patients with genuine stress incontinence. Perineal pad weight changes after three types of non-surgical treatment for 3 months.

Table. Overall results of conservative treatment of genuine stress incontinence

	Pelvic floor exercises (n=26)	Interferential treatment (n=25)	Oestrogen (n=24)	Controls (n=25)	Total (n=100)
Cured and improved	17 (65%)*	8 (32%)	3 (12%)	nil	28
Unchanged	9 (35%)	17 (68%)	21 (87%)	25 (100%)	72

* $P<0.001$

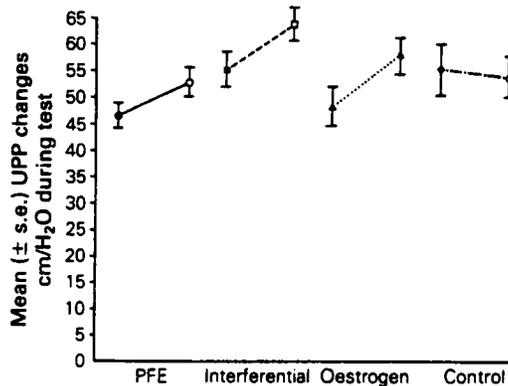


Figure 2. Urethral pressure changes at rest after 3 months' treatment. PFE - pelvic floor exercises.

the patients treated with oestrogens ($P < 0.001$; Figure 2). The increase in the maximum urethral closure pressure during Valsalva's technique correlated very well with the reduction in perineal pad weights in all the groups (Figure 3). The control group of patients did not have any significant changes in perineal pad weights or urethral pressure measurements after 3 months.

When the patients' symptoms were re-assessed after 9 months, there were recurrences in three patients in the 'exercise' group and in one patient who had interferential treatment. All the three patients using oestrogen who improved initially had immediate recurrence of symptoms on discontinuing oestrogen treatment.

DISCUSSION

Pelvic floor exercises appears to be the most effective non-operative method for the treatment of

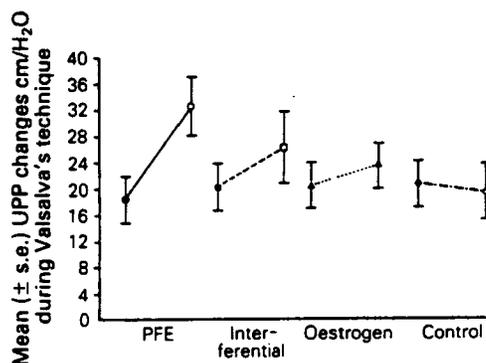


Figure 3. Urethral pressure changes with Valsalva's manoeuvre after 3 months' treatment.

urinary stress incontinence. Initially 65 per cent of patients were either cured or improved and this effect was maintained in 50 per cent of patients after 9 months from commencing the treatment. It does not appear from our results that the patients' age or the severity of their incontinence has any implication in the results of treatment. Also the presence of mild genital prolapse or previous history of hysterectomy or a pelvic floor repair procedure did not compromise the treatment outcome.

Interferential therapy was successful in 28 per cent of cases 9 months later. The optimum stimulus and frequency of administration has yet to be determined. This method of treatment may be used in situations where pelvic floor exercises are difficult to practice and in cases of unreliable patients. It may also be used in patients with mixed problems of stress incontinence and detrusor instability.

Oestrogens in the dose used had a very small place in the treatment of urinary stress incontinence, but had some effect on the urethral pressure changes, mainly during rest. The rise in the maximum urethral closure pressure during the Valsalva's technique with oestrogen administration occurred only in those whose urinary incontinence was significantly improved.

It would seem sensible that all patients who complain of simple urinary stress incontinence should have a carefully conducted course of pelvic floor exercises in the first place before any other treatment. By avoiding surgical procedures, considerable savings will be made within the National Health Service. Furthermore, the psychological side effects on the patient following a failed surgical procedure are far greater than those following conservative management. Operative procedures should only be performed on those who do not benefit significantly from conservative treatment.

REFERENCES

- Arnold E. P., Webster J. R., Loose H., *et al.* (1973) Urodynamics of female incontinence: factors influencing the results of surgery. *American Journal of Obstetrics and Gynecology* 117, 805-813.
- Brown A. D. G. (1977) Post-menopausal urinary problems. *Clinics in Obstetrics and Gynaecology* 4, 181-206.
- Caldwell K. P. S. (1974) Clinical use of a recording nappy. *Urology International* 29, 172-173.
- Harrison S. M. (1983) Stress incontinence and the physiotherapist. *Physiotherapy* 69, 144-147.
- Kegel A. H. (1951) Physiologic therapy for urinary stress incontinence. *Journal of the American Medical Association* 146, 915-918.

- Montgomery E. and Shepherd A. M. (1983) Electrical stimulation and graded pelvic exercises for genuine stress incontinence. *Physiotherapy* 69, 12.
- Moolgaoker A. S., Ardran G. M., Smith J. G. and Stallworthy J. A. (1972) The diagnosis and management of urinary incontinence in the female. *Journal of Obstetrics and Gynaecology British Commonwealth* 79, 481-497.
- Sutherst J., Brown M. and Shawer M. (1981) Assessing the severity of urinary incontinence in women by weighing perineal pads. *Lancet* i, 1128-1130.
- Thom H. (1983) Sterodynamic interferential current therapy - fundamentals and initial results. *Physiotherapy* 69, 147.
- Toews H. (1967) Intraurethral and intravesical pressure in normal and stress incontinent women. *Obstetrics and Gynecology* 29, 613-624.
- Whitehead M. I., Minard J., Kitchin Y. and Sharples M. J. (1978) Systemic absorption of oestrogen from premarin vaginal cream. In *The Role of Oestrogen/Progesterone in the Management of the Menopause*, edited by Cooke I. D., pp. 63-72. Lancaster: MTP Press.
- Wilson P. D. (1984) Double blind study comparing oestrogens with placebo. M.D. thesis, Glasgow University, chapter 7, pp. 218-224.

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