

## **A NEW EHEALTH SERVICE FOR WOMEN WITH URINARY INCONTINENCE: AN ONLINE DIAGNOSTIC EXPERT PROGRAM COMBINED WITH A CONSULT AT HOME BY A CONTINENCE NURSE.**

### Hypothesis / aims of study

The high prevalence of female urinary incontinence, under treatment or no treatment at all, the suitability of questionnaires and the increasing availability of internet has led to the development of a computerized Diagnostic Expert Program (DEP) to discriminate between different types of female urinary incontinence (1). DEP also identifies risk factors, complicating factors and generates personalized advice (2). ICS definitions of 2002 and international guidelines for urinary incontinence were embedded in the development of the software. Multicentre clinical studies demonstrated a positive predictive value of 90-93% for the correct diagnosis made by DEP(1,3). An ehealth version of DEP was combined with a continence service delivered at home by continence nurses in order to optimize diagnosis combined with the skills of continence nurses. The aims of study are to evaluate the outcomes of this combined service.

### Study design, materials and methods

Media attention resulted in internet recruitment of 1286 women with urinary incontinence of whom 1184 used the online DEP as self-care help only and 102 used the online DEP in combination with a consult at home by a continence nurse. These 102 women are subject of this study. The protocol consisted of completing the online questionnaire, Quality Of Life score (QOL: visual analog score 0 is no bother and score 10 is extreme bother), bladder diary, use of DEP and its results, home visit by a qualified continence nurse, urine analysis and physical/pelvic floor examination. With these results the type of incontinence was established and risk factors were used for personalized advice on lifestyle, pelvic floor muscle training (PFMT), bladder training and pad use. Complicating factors were used for referral advice. Explanation and motivation were important issues in the advice. After 4 and 8 weeks follow up calls were made by the continence nurse to evaluate progress, to stimulate self-care and to give additional advice. At 8 weeks a bladder diary and QOL score were obtained. All data were electronically filed. The data were used to evaluate changes in QOL, bladder function and pad use.

### Results

102 women with urinary incontinence completed the service. The mean age was 61 years (range 29 - 88 years). A variety of co morbidity was present and some already had received treatment for incontinence. Reported complicating factors were: Diabetes Mellitus (12%), neurologic disease (16%), previous pelvic surgery/radiotherapy (17%), poor mobility (7%), psychiatric treatment (13%), haematuria (6%), abnormal defaecation (26%), co medication (48%) and vaginal bulging (6%). Pad use varied in different sizes and from 0 to 10 pads per day (average 3.2). 25% of women were diagnosed with stress-, 66% with mixed- and 9% with urgency urinary incontinence. 25% of women had an abnormal urine analysis of whom 15% had a suspicion for urinary tract infection and 11% haematuria for which referral to their physician was recommended. 2% of women had vaginal pathology for which referral was advised. Referral to Pelvic Floor Therapist was advised to 22% of women, but only followed in 6%. Instruction and advice with lifestyle changes were given in 89% of women: 28% losing weight, 21% laxative diet, 16% stop smoking and 38% fluid intake adaptations. Instructions on PFMT were given in 91% of women and bladder training in 73%. The QOL score improved with 72% of women and deteriorated with 4%. The average QOL score of 5.4 improved to 3.7 (31%). 55% of women reported a decrease in incontinence and 2% an increase. Improvement with lifestyle changes was reported in 48% of women and with PFMT 50%. The registered pad use at start and at 8 weeks decreased with 62% of women and increased with 7%. According to 45% of the women there was a decrease of pad use and to 4% an increase. The total number of pads reduced with 25%. In 14% there was a substitution to smaller pads. 13% of women reported to be continent at 8 weeks and most of them were initially diagnosed with stress incontinence (62%). Bladder function could be evaluated in 72 women with completed bladder diaries at start and after 8 weeks. Initially 24% of women had a functional bladder capacity smaller than 300 ml. After 8 weeks this decreased to 13%. The voiding frequency decreased in 56% if women and increased in 22%. The average voided volume per micturation increased in 72% of women and decreased in 15%. The average voided volume increase was 16%. Combined improvement in QOL, pad use and/or bladder function for this study was achieved in 91% of women of whom 13% gained continence. Women with unsatisfactorily results were advised for referral to their physician.

### Interpretation of results

The Diagnostic Expert Program supported the diagnostic and therapeutic skills of the continence nurses in this protocol driven service. The results of this study demonstrate that 91% of the women improved, of whom 55-72% improved in QOL, of whom 56-72% had improved bladder function and of whom 45-62% had decreased pad use. 13% of women reported continence mainly associated with treatment of stress incontinence and 4% reported deterioration associated with co morbidity. The total number of used pads per day decreased with 25% which will lower costs of care. Whether these results will improve or lapse in time remains to be studied.

### Concluding message

Ehealth, based on the Diagnostic Expert Program, combined with the skills of continence nurses in a protocol driven service with easy access in the home environment is meant to bring continence cure to more women. The results of this study demonstrates the benefits of this innovative service with continence in 13% and improvements in 78% of women with urinary incontinence in the studied population.

### References

1. De Bruin MJFM, De Waard WIQ, Leliefeld HHJ, et al. (2006). Multicenter validatie van het internet diagnose computer programma Mediarts voor urine incontinentie bij vrouwen. Ned T v Urol, 6:176.
2. <http://www.incocure.com/en>
3. De Bruin M, Bentvelsen F. (2007). The Mediarts test for female urinary incontinence reduces the need for invasive urodynamics. Eur Urol Suppl, 6(2):203.

### Disclosures

**Funding:** none **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** Retrospective study of conservative treatment.  
**Helsinki:** Yes **Informed Consent:** Yes