

Case report:

EFFECT OF BIOFEEDBACK ON URINARY INCONTINENCE

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ABSTRACT:

Urinary incontinence is a condition where the person loss controls of urinary bladder. It may also lead to isolation from public gatherings and later on may lead to depression. It may increase by age. We report the case of six year old boy who came with unknown maturation and successfully underwent with physiotherapy intervention with sessions followed by visual and auditory biofeedback.

Keywords: Urinary incontinence, Biofeedback

INTRODUCTION:

Incontinence is the inability to restrain the discharge of urine. In which the quality of life is lost and suppress people mentally away from public gatherings [1]. There are two types: acute, which is often related to an associated disease and chronic persistent incontinence.

Acute incontinence appears suddenly and is not rare in older individuals. It is most commonly associated with an underlying disease. The causes of acute incontinence are easily remembered by the mnemonic,

DRIP: They are Drugs, delirium, Retention of urine, restricted mobility, Impaction, Infection, Polyuria and Prostates.

The treatment modality for acute incontinence includes frequent toileting and treatment of the underlying cause and catheterization should be avoided as it increases the likelihood of hospital-acquired infections.

Chronic Incontinence can be of various varieties. They are

- Urge incontinence, the most common form of incontinence which is characterized by loss of large or small volumes of urine when the individual has insufficient warning following the urge to void and to allow him or her to reach the toilet.
- Stress incontinence occurs in women who usually have had children and is characterized by loss of small volumes of urine following sneezing, coughing or others which increase intra-abdominal pressure. It happens when the internal urethral sphincter, the circular band of muscle that

surrounds the opening of the bladder, has lost muscle tone and pushed outside of the abdominal cavity.

- Reflex incontinence occurs in persons with spinal cord damage. Their bladders do not receive the message to stop urination.
- Functional incontinence occurs when either a person's physical or mental state deters the person from urinating in the toilet, i.e., the person lacks the physical ability to reach the toilet or lacks an adequate thought process to go to the toilet when having the urge to urinate. Frequent causes include dementia, strokes and depression.

At least ten million Americans suffer from urinary incontinence. It affects 15 to 50 % of elderly in each community. The annual income spent on incontinence in U.S.A is \$10 billion (this cost exceeds the cost of dialysis and coronary bypass surgery). 200,000 people suffer from urinary incontinence in New Zealand, of which, about 80% are women. The treatment of core behavior is by pelvic re-education. Biofeedback takes the estimation of pelvic floor training and followed by exercise program will show very good prognosis of muscle strength and great bladder control in treating urinary incontinence [4]. It's also quoted that patients treated by biofeedback are reeducated with good results compared to pharmaceutical treatment [A 1998 article in the Journal of the American Medical Association (JAMA)].

CASE REPORT:

A boy of six year old came with his father complaining of unknowingly voiding of urine and also frequency of urine micturation in high levels comparative to his younger brother of five years. Going into his medical history we found he has underwent with the surgery of spine bifida and later on got a complication of urinary incontinence. For assessment of pelvic floor muscles strength there is an international accepted method of modified oxford grading [2]. A daily bladder or bowel report has been kept for one week prior to beginning a behavioral program. The history must include the number of incontinent accident actions; activity associated with the unknown micturation, times of regular voiding and fluid intake is noted. The evaluation included a review of the patient's medical history, a penis/or rectal examination, an assessment of urethral prolapsed and bladder, rectal prolapse, muscle strength and of the patient's ability to control his pelvic muscles. Usually urine analysis and culture and post void residuals are necessary. Based on history and physical examination findings, he is diagnosed with spastic bladder weakened pelvic floor muscles poor tightness of detrusor muscle. No action of external spinter.

METHODOLOGY FOLLOWED:

POSTION: SUPINE LYING: This position is quiet comfortable position for placement of electrodes and encourages good proprioception of targeted muscles for good behavioral encouragement.

PLACEMENT OF ELECTRODES:

Electrodes, monitoring to accessory muscles, usually the abdominals, are attached. These surface patch electrodes were placed above the pubic symphysis and to the right of the umbilicus, 3-4 cms apart to monitor the muscle activity. After connecting to the biofeedback instrument, the assessment has begun. First baseline information is gathered for the resting biofeedback levels of the pelvic floor muscles. The resting levels should be acquired over a 1-3 minute interval.

During the first few minutes of subsequent sessions. The patient is asked to tighten the pelvic muscles and to hold the contraction for a minimum of 10 seconds. The amplitude of the contraction of the pelvis muscles will vary for every patient after the pelvic muscle contraction, a period of relaxation must follow which is typically ten seconds. It is also important that the pelvic muscles are isolated and that the accessory muscles of the legs, buttocks and abdomen are not contracted. The recordings should be noted once after the muscles getting fatigue after performing repeated contractions. There by the patient is shown with a sort of encouragement with auditory beep sound for reaching the threshold value and followed by visual feed back too.

Later on we asked him to perform exercise protocol with kegels excercises which are well defined for urinary incontinence re-education program [5, 6, and 7].Followed by electrical stimulation of the pelvic floor muscles an effective method [3] to obtain good prognosis. Later on we took his

biofeedback readings again. This treatment has been followed for 25 days with a one hour 40 minutes session of treatment. For followed by exercise protocol of kegel's exercises and modified kegels exercises later on with stimulation with 30 contractions with 10 sec rest followed with 5 sets in prognosis of treatment we increased time of contraction. Later on endurance training was also done with submaximal contractions followed by biofeedback which is an friendly equipment to obtain good prognosis for urinary incontinence [8,9,10].

Two electrodes are taken divided as electrode A as abdominal electrode placed on right umbilicus abdominal quadrant and electrode B as pubic symphysial electrode placed on pubic symphysis.

We place the equipment in front of the patient and ask to contract the pelvic muscles initiating or encouraging to uplift the scrotal sacs. And ask to relax the abdominal muscles this feedback we note from monitor or by placing hand on his abdomen. He was trained and made aware to increase electrode b values and decrease electrode a values. Later on his average reaching highest values were noted down and rationalized. Thereby actual time given to biofeedback in one session is 20 minutes. Remaining time is spent on patient re-education, reviews of voiding, instructions to dietary habits of fluid intakes. Generally treating a child or an elderly patient it's helpful or more firm to take assistance from their parents or attendants [10].

DISCUSSION:

Patient has shown gradual improvement in first sessions of ten days later on improved shiftily with great enhance he was able to hold urine for a period of time for few minutes which was a great achievement for a person who cant even hold for a few seconds. Later on in second session after introducing with modified kegels exercises and increase in threshold value of biofeedback he improved to hold for hours together and was not seen wetted in clinic. By completion of treatment sessions his father reported him going to school and not wetting in trousers. There by it was evidently shown improvement successfully through biofeedback intervention.

In our case, significant statistical difference have been seen in 25 days of treatment both 3 pre A values and 3 post A values are taken with pre A values mean have been 33.3 and post A mean value being 2 simultaneously pre B value and after treatment post B values take being pre B value mean is 164 and mean of post B value is 364.66. applying t- test we got p-value of pre A is 0.013428 and post A is 0.011554(ideally p value<0.05).therefore its significantly statistical difference between pre A and post A which means that patient has almost stopped using abdominal muscles during training.

CONCLUSION:

There by this study significantly concludes that biofeedback intervention in physiotherapy management of urinary incontinence is prominent and effective technique to be adaptable.

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