Experience with Vaginal and Anal Pacemakers

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The high costs which the manufactured pacemakers imply for the patient in our country (Belgium), and the impossibility of predicting the results, have incited us to construct vaginal and anal pacemakers ourselves. This construction has posed four main problems: (1) the choice of the characteristics of the electrical pulses; (2) the miniaturisation of the apparatus; (3) the life of the batteries, and (4) the material of the wires around the pessary or anal plug.

There are great differences concerning the characteristics of frequency per second and duration of pulses among different types of described pacemakers. We found that in relatively normal sphincters (e.g. iatrogenic incontinence, stress incontinence, enuresis), the characteristics are of less importance than in true neurogenic detrusor-perineum diseases.

In collaboration with our physiotherapeutic service we are trying to correlate the myographical pattern of the perineal muscles with the characteristics of electrical stimulation which evokes the optimum response. Therefore, during 1–2 weeks, this optimum is looked for by means of a Grass stimulator connected to the pessary or anal plug. Thereafter, a miniature pacemaker is made according to the optimum characteristics.

The life of the Mallory batteries is a function of the output impedance of the pacemaker. In our model, this impedance can be changed from small to high; the maximum at still efficient currents is used (the short-circuiting currents in vagina and rectum are variable). If the life of the batteries is not long enough, they are replaced by accumulators which may be recharged at night. In this way the costs of maintenance are reduced.

We have not yet found the ideal material for the wires. Electrolysis at one of the electrodes with rupture of the wires makes regular replace-

Vereecken

223

ment of the pessary or plug necessary. We cast the pessary and anal plugs in silicon rubber; this flexible material facilitates fitting into the vagina or rectum and makes for better fixing and it is also more readily supported by the patients than the manufactured ones. The results we obtained with the external pacemakers have improved since we adapt and construct the pacemakers ourselves.

Perfect results are obtained if the bladder is not hypertonic and does not show too frequent uninhibited contractions. Usually in these cases the activity of the perineal muscle cell is

disturbed little (not atrophied or replaced by fibrous tissue). In this category of patients we classify; (a) post-iatrogenic and post-traumatic incontinence, 3 cases (usually ur-ethral dilatations are required as well); (b) enuresis nocturna, 6 cases; (c) senile incontinence, 4 cases (supervision of the staff of geriatric homes is required); (d) selected cases of multiple sclerosis, 3 cases, and (e) dribbling after Gersuny operation (rectal bladder), 2 cases.

Variable results ranging from failure to relative success) are obtained in true neurogenic incontinence accompanied by major bladder disturbances.

The outcome of treatment does not appear to be affected by the age of the patient.