Cerebrospinal Fluid Research

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Oral Presentation

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Use of transdermal oxybutynin in individuals with spina bifida

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from 48th Annual Meeting of the Society for Research into Hydrocephalus and Spina Bifida
Dublin, Ireland, 23–26 June 2004
Published: 23 December 2004

Cerebrospinal Fluid Research 2004, **1**(Suppl 1):S38 doi:10.1186/1743-8454-1-S1-S38

This article is available from: http://www.cerebrospinalfluidresearch.com/content/1/S1/S38

Oxybutynin (OXY) used in combination with clean intermittent catheterisation (CIC), has been the first-line medication for treatment of neurogenic bladder dysfunction over the past two decades. The efficacy of oral OXY in treatment of neurogenic bladder has been demonstrated in several studies. OXY has been shown to increase the maximum bladder capacity, decrease the maximum detrusor pressure with filling, and in combination with CIC, help prevent upper urinary tract deterioration. Until recently, OXY was only available in immediate-release tablets and syrup, both usually requiring dosing two or three times daily, with increased opportunity for missed doses. Intravesical OXY has been used with refractory patients or individuals who could not tolerate the systemic anti-cholinergic side effects, and has been shown to be effective. However, other problems including non-compliance, difficulty with instillation, leakage of medication, etc. have limited its general appeal. With the advent of a long-acting OXY preparation (Ditropan XL), OXY could be given orally just once daily with reduced side-effects for many patients. Even more recently, a transdermal OXY (Oxytrol) delivery system has been tested, FDA-approved and marketed in the United States. A randomised, double-blind, study of transdermal OXY versus immediate-release oral OXY in patients with urge incontinence showed comparable efficacy with lower side effects (Davila 2001).

In another study, it was shown that transdermal OXY as a 3.9 mg/day patch (Oxytrol) provides a steady-state level of oxybutynin that is favourable compared to the 10 mg Ditropan XL, with even lower levels of the metabolite, N-desthyloxy-butynin, the compound felt to be most responsible for annoying anti-cholinergic side effects (Appell 2003). To date, there is no published study evaluating the use of transdermal OXY in the treatment of neurogenic bladder dysfunction or in spina bifida.

In our Spina Bifida Center, we have begun using the oxybutynin transdermal delivery system (OTDS) in select patients: those with significant side effects and those who had problems with compliance on oral OXY preparations. To date, we have used OTDS in 8 individuals with spina bifida ranging in age from 6 to 41 years (average 19 years). None of the individuals have discontinued the OTDS. All have shown a decrease in side effects compared to oral anti-cholinergics, with similar or improved urinary continence.

Transdermal oxybutynin shows considerable promise in the treatment of neurogenic bladder dysfunction. Further studies of dosing and efficacy are needed, especially in children.