New treatment aspects of non-neuropathic daytime urinary incontinence in children

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ABSTRACT

This PhD dissertation is based on studies performed at the Pediatric Research Laboratory, Clinical Institute, Aarhus University Hospital, Skejby Section, Denmark.

Non-neuropathic daytime urinary incontinence is a common disorder of childhood causing considerable distress and low self-esteem for the affected children. The condition persists into adulthood to a considerable degree and also for this reason needs to be dealt with. The lack of randomized controlled trials addressing such a common disorder is remarkable and management is mainly based on expert opinion, uncontrolled trials and results from studies on adults. In the present thesis we provide new insights into treatment of the disorder. In specific we evaluate the efficacy of conservative management applied as a cascade of modalities in daytime urinary incontinent children and describe differences in bladder characteristics between responders to different levels of treatment. Furthermore, we assess the effect of timer assisted urotherapy and sacral transcutaneous electrical nerve stimulation (TENS) in the treatment for non-neuropathic daytime urinary incontinence in randomized controlled trials including firmly characterized populations of children suffering from the disorder. The thesis is base on three studies.

We report that the majority of children with non-neurogenic daytime incontinence without comorbidity of UTI or defecation problems can obtain continence by standard urotherapy. Moreover a treatment cascade of modalities, where isolated urotherapy precedes employment of pharmacologic agents lead to daytime continence in more than 90% of these children. The study indicates that children needing antimuscarins for obtaining continence and the ones refractory to treatment suffer from more severe bladder reservoir function problems than responders to isolated standard urotherapy.

We show that timer watch assisted urotherapy is far superior to standard urotherapy alone in the treatment of daytime incontinence in children with OAB. In these patients the effect of timer assistance in urotherapy appears to be a result of increased adherence to the timed voiding regimen and not related to changes in fluid intake. Moreover, a hypothesis that timer assisted is a result of increased bladder reservoir function in children is not substantiated by the present studies.

We document that the sacral TENS is superior to placebo treatment in refractor daytime urinary urge incontinence in children. To our surprise the effect of TENS treatment did not seem to be related to changes in bladder capacity as indicated in uncontrolled studies, but a result of improved sensation of bladder signals.

Our results point towards several areas of interest for further research such as long-term efficacy and relapse rate after successful treatment by conservative management, the mechanisms responsible for the effect of a timer watch in addition to urotherapy and TENS, and controlled comparative studies of timer assisted urotherapy, TENS and antimuscarinic therapy.