INTRODUCTION & OBJECT

• Overactive bladder (OAB) is defined as ‘urgency, with or without urge incontinence, usually with frequency and nocturia’.
• Overall prevalence exceeds 16% and is reported as 16.9% in Korean children.
• Recent evidence suggests that newer anti-muscarinic agents are not only superior to placebo, but may also have a role in treating OAB symptoms in children and men with lower urinary tract symptom.
• As there are limited data on the use of anticholinergics in pediatric patients with OAB, little is known about the benefits and tolerability of anticholinergics.
• The aim of this study was to retrospectively investigate the efficacy and tolerability of anticholinergics used in Korean children with OAB.

MATERIALS & METHODS

• Between January 2008 and December 2011
  - Minimal duration of anticholinergics medication ≥ 1 week
  - No. of patients: 326 (M:F=157:169) in national 15 hospitals in Korea
  - Mean age: 7.3 ± 2.6 years (5-18)
  - OAB symptom duration: 16.9±19.0 months

• Exclusion criteria
  - Neuropathic bladder, Spinal dysraphism
  - Anatomical abnormalities (e.g., posterior urethral valves or vesicoureteral reflux)
  - Bowel elimination problems (e.g., constipation or encopresis)
  - Primary monosymptomatic nocturnal enuresis
  - Patients with urinary tract infection
  - Patients who were taking other anticholinergics or drug with anticholinergic-like effects
  - Patients with the kidney, liver, intestine, cardiovascular system and psychological problems

*Anticholinergics in study population*

- propiverine: n=189 (10mg, n=104; 20mg, n=85)
- oxybutynin: n=54
  - (2.5mg, n=8; 5mg, n=26; 7.5mg, n=16, 10mg, n=4)
- fesoterodine: n=32 (2mg, n=9; 4mg, n=23)
- solifenacin: n=23 (5mg)
- tolterodine: n=28 (2mg, n=16; 4mg, n=12)

• Average drug usage period: 5.6 ± 7.3 months
• Average follow-up: 9.8 ± 11.6 months

RESULTS

• Improvement of OAB
  - Urgency(+): n=243 → n=53 (78.2% improved)
  - Urgency incontinence(+): n=158 → n=33 (79.1% improved)
    : 1.9±3.1 episodes/week → 0.4±1.5 episode/week (p<0.001)
  - Frequency on voiding diary (n=264)
    : 9.2±5.4 episodes/day → 6.3±4.2 episodes/day (p<0.001)

• Bladder capacity on voiding diary (n=104)
  - Maximal capacity (mL)  Average capacity (mL)
    |    |                  |                  |
    | 145.5 | 196.8 | 80.8 | 121.8 |

- Uroflowmetry (n=52 available)
  - Voiding volume
    : 119.4 ± 117.6 mL → 149.9 ± 92.3 mL (p=0.094)
  - Maximal flow rate
    : 17.6 ± 8.4 mL/sec → 20.5±8.2 mL/sec (p<0.001)
  - Residual urine volume
    : 24.4 ± 72.2 mL → 14.3 ± 15.0 mL (p<0.001)

• Adverse Effects
  - Constipation
    : 2 (1.0) 3 (0.9) 4 (1.2) 2 (0.6)
  - Diarrhea
    : 0 0 0 0
  - Abdominal pain
    : 1 (0.3) 1 (0.3) 1 (0.3)
  - Nausea
    : 1 (0.3) 1 (0.3) 1 (0.3)
  - Dryness of mouth
    : 3 (0.9) 2 (0.6) 1 (0.3) 2 (0.6)
  - Rhiitis
    : 0 0 0 0
  - Atopy
    : 1 (0.3) 1 (0.3)
  - Dizziness
    : 1 (0.3) 1 (0.3)
  - Fatigue/sleepiness
    : 0 0 0 0
  - Visual disturbance
    : 0 0 0 0
  - Headache
    : 0 0 0 0

  - Total
    : 14 (4.3) 5 (1.5) 8 (2.5) 1 (0.3) 6 (1.8)

CONCLUSIONS

• Anticholinergics have a good efficacy and are well tolerated for children suffering from OAB.
• Effectiveness and safety of antimuscarinics for pediatric OAB patients are clearly demonstrated by large-scale, prospective, and randomized studies in the future.