WEEKLY ORAL CYCLING ANTIBIOTIC IMPACT

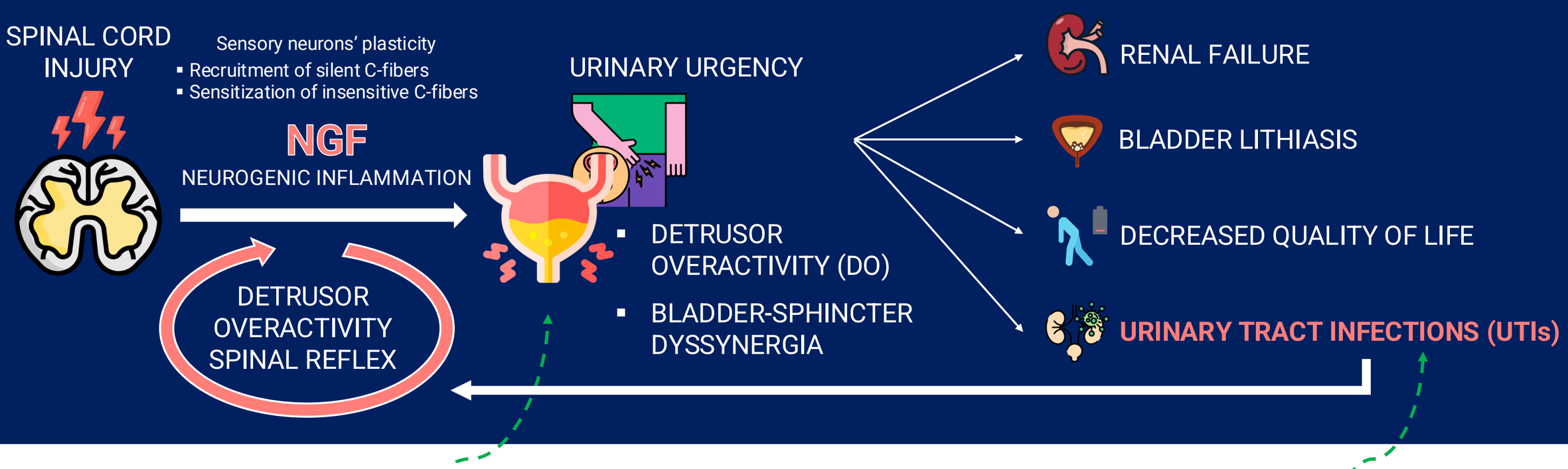
ON INTRADETRUSOR A-TYPE BOTULINUM TOXIN INJECTIONS FAILURE

ZUMBIEHL M[1], EVEN A[1,2], WELNIARZ A[1], DENYS P[1,2], JOUSSAIN C[1,2]

1. Department of Physical Medicine and Rehabilitation, Hôpital Raymond-Poincaré AP-HP, Garches, France,
2. Medical School Paris Île-de-France Ouest, Inserm U1179, Versailles Saint-Quentin University, Versailles, France

ABSTRACT #788
TRACKING NUMBER #25650

NEUROGENIC DETRUSOR OVERACTIVITY PHYSIOPATHOLOGY



NEUROGENIC DETRUSOR OVERACTIVITY TREATMENT

① ANTIMUSCARINICS

② **INTRADETRUSOR BOTULINUM TOXIN INJECTIONS (IDBT)** + CLEAN INTERMITTENT SELF CATHETERIZATION (CIC) ± **WEEKLY ORAL CYCLING ANTIBIOTIC (WOCA)** FOR PATIENTS WITH RECCURENT UTIs

BUT IDBT LONG TERM EFFICACY SLOWLY DECREASE

~ 30 % OF FAILURE AFTER 7 YEARS

HYPOTHESIS

Chronic urinary tract infections could increase neurogenic inflammation and related bladder sensory neurons' plasticity, which is responsible for uncontrolled NDO

→ **Patients treated with WOCA should have a lower IDBT failure rate**

MATERIAL & METHOD

POST HOC STUDY

Joussain & al 2017 Long-term outcomes and risks factors for failure of intradetrusor onabotulinumtoxin A injections for the treatment of refractory neurogenic detrusor overactivity.

INCLUSION

≥18 y.o. , neurogenic detrusor overactivity, IDBT injections from 2003 to 2013, CIC, ≥ 3 years follow-up, without bladder surgery

2 GROUPS

Treated with WOCA & Not treated with WOCA (W/O WOCA)

INTERVENTION

- IDTB injections of 200 or 300 BOTOX® units every 6 months
- WOCA : weekly dose of 2 alternating antibiotics chosen after several cytobacteriological examinations of the urine, for patients with ≥ 4 UTIs per year

PRIMARY ENDPOINT

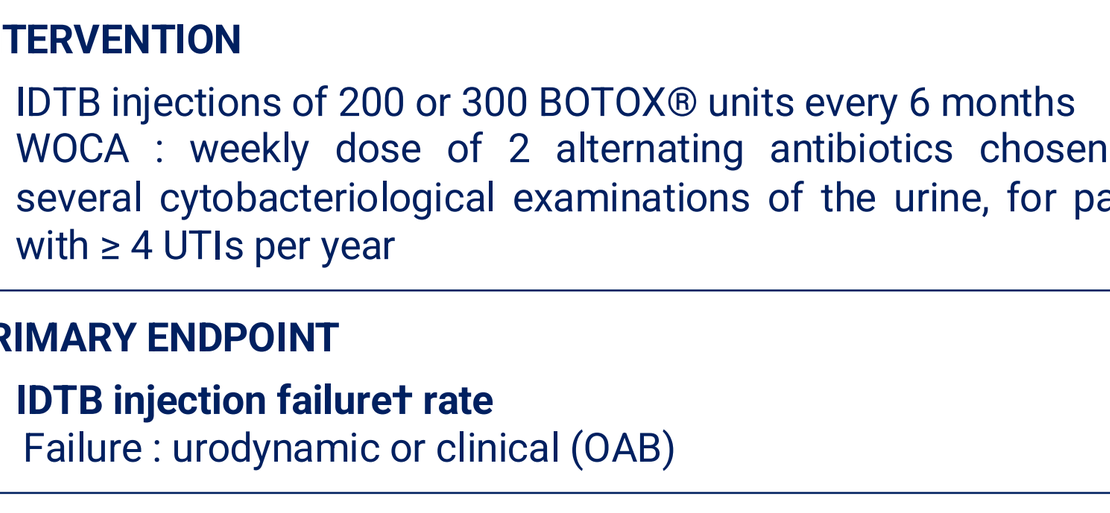
- **IDTB injection failure† rate**

† Failure : urodynamic or clinical (OAB)

STATISTICAL ANALYSIS

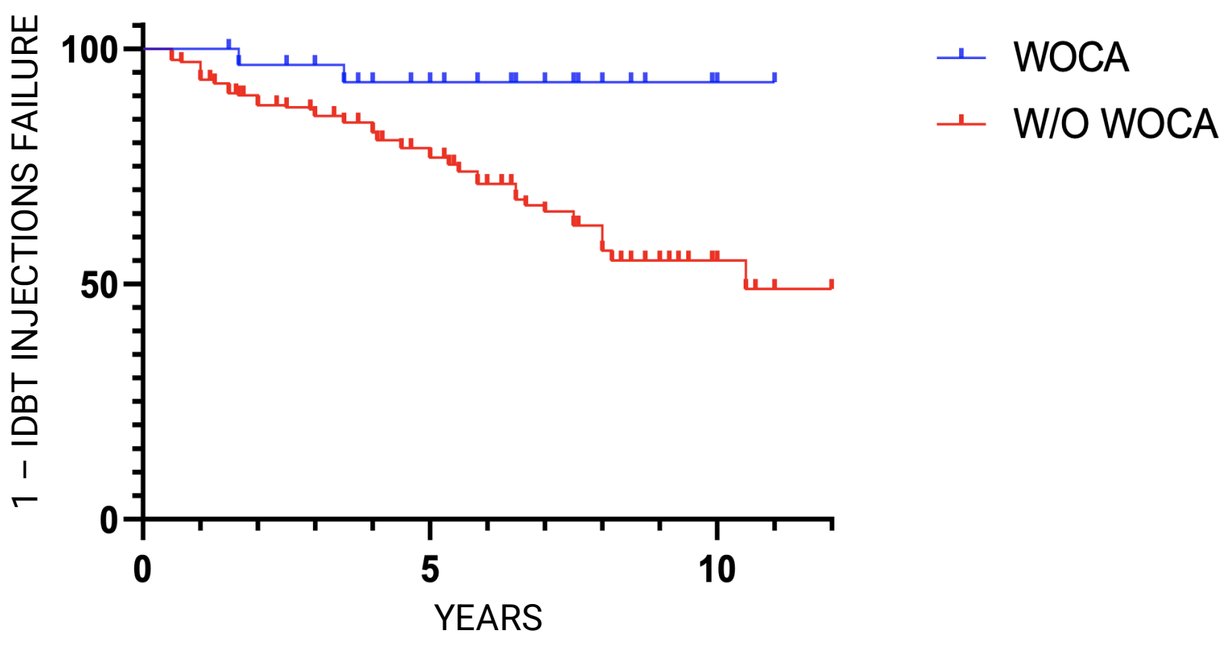
- IDTB injections survival curves : Kaplan Meier
- Curves comparison : Mentel-Cox
- Hazard ratio : Logrank

POPULATION CARACTERISTICS



RESULTS

FAILURE RATES OF IDBT INJECTIONS



10 YEAR FAILURE RATE OF IDBT INJECTIONS

WOCA GROUP : 7,2 % vs W/O WOCA GROUP : 45%

HAZARD RATIO : 0.2 IC95% [0,10 – 0,41], p = 0,013

DISCUSSION

Results support the hypothesis that

- Recurrent UTI favours IDBT injections failure, inducing a NDO spinal reflex by C-fibers plasticity (recruitment and sensitization).
- A better management of external factors of detrusor overactivity lead to better control of neurogenic bladder.
- Bladder Microbiota, among patients using CIC, is a potential target for the treatment of NDO.

Limits of the study

- Retrospective study with its inherent bias, low level of evidence.
- No evaluation of the impact of WOCA over the kinetic of IDBT injections failure.

CONCLUSION

This study is in favor of significant decrease of IDBT injections failure, among patients with NDO, when treated with WOCA

REFERENCES

1. Hayes BW, Choi HW, Rathore APS, Bao C, Shi J, Huh Y, Kim MW, Mencarelli A, Bist P, Ng LG, Shi C, Nho JH, Kim A, Yoon H, Lim D, Hannan JL, Purves JT, Hughes FM Jr, Ji RR, Abraham SN. Recurrent infections drive persistent bladder dysfunction and pain via sensory nerve sprouting and mast cell activity. Sci Immunol. 2024 Mar;9(93):eadi5578.
2. Dinh A, Hallouin-Bernard MC, Davido B, Lemaignen A, Bouchand F, Duran C, et al. Weekly Sequential Antibioprophylaxis for Recurrent Urinary Tract Infections Among Patients With Neurogenic Bladder: A Randomized Controlled Trial. Clin Infect Dis. 15 déc 2020;71(12):3128-35.
3. JoussainC, PopoffM, PhéV, EvenA, BossetPO, PottierS, et al. Long-termoutcomes and risks factors for failure of intradetrusor onabotulinumtoxin A injections for the treatment of refractory neurogenic detrusor overactivity. Neurourol Urodyn. févr 2018;37(2):799-806.

* SCI : spinal cord injury; ** MS: multiple sclerosis

ZUMBIEHL Maxence
Physical Medicine and Rehabilitation Intern
maxence.zumbiehl@gmail.com