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Eldred-Evans D[1], Seth J[1], Khan M S[1], Chapple C[2], Dasgupta P[1], Sahai A[1]
1. *Guy's and St. Thomas' Hospital,* ***2.*** *Sheffield Teaching Hospitals NHS Foundation Trust*

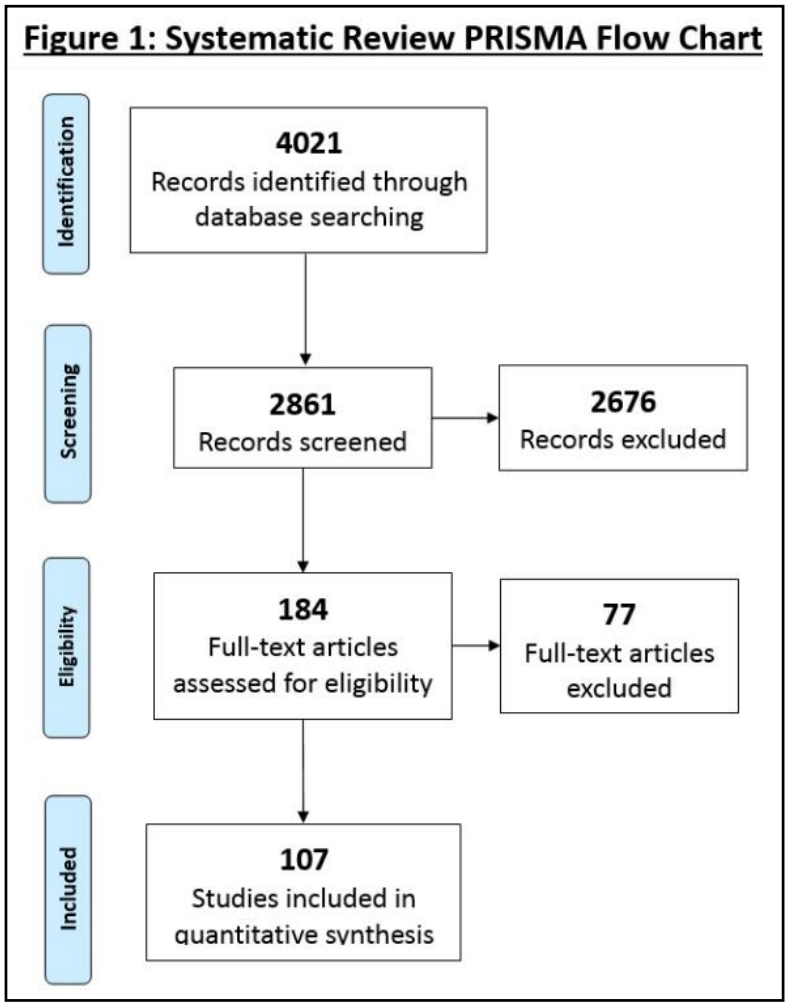
ADVERSE EVENTS WITH BOTOX AND DYSPORT FOR REFRACTORY OVERACTIVE BLADDER: A SYSTEMATIC REVIEW

Hypothesis / aims of study

OnabotulinumtoxinA (Botox) and AbobotulinumtoxinA (Dysport) are pharmacologically distinct type A serotypes, which are known to have different clinical potencies and diffusion characteristics. We conducted a systematic review comparing the adverse events associated with these preparations in refractory overactive bladder (OAB).

Study design, materials and methods

The PubMed, Embase, and Cochrane databases were searched from inception until December 2014. Eligible studies included randomized control and observational studies reporting the side effects of OnabotulinumtoxinA and/or AbobotulinumtoxinA.
The search identified 4021 studies which were screened in accordance with PRISMA guidelines(1). The study selection flow diagram is shown in Figure 1. Methodological quality was assessed using Cochrane Collaboration's tool or Newcastle-Ottawa scale according to the design of each study.



Results

The final analysis included 107 studies and 7555 patients. Their level of evidence, as per the modified Oxford system(2), was:

- Level 1a: 27 studies
- Level 1b: 3 studies
- Level 3: 77 studies

There were 6009 Botox patients and 1546 Dysport patients. This included 4188 patients with idiopathic overactive bladder (iOAB) and 3367 patients with neurogenic overactive bladder (nOAB)
There was no statistical difference in the rate of urinary tract infection (OR 0.76, CI 0.47-1.23, p=0.28) or macroscopic haematuria (OR 0.88, CI 0.55-1.40, p=0.67). The incidence of raised PVR and de novo CISC appeared to be higher for Botox compared to Dysport. However, this was complicated by the wide range of definitions for raised PVR and criteria for catheterisation across studies.

In the pooled analysis, generalised muscle weakness was significantly higher for Dysport (1.4%) compared to Botox (0.7%) (OR 1.94, CI 1.13-3.34,p=0.01). This was dose dependent but did not reach statistical significance when analysed by types of OAB (see Table 1).

Table 1: Adverse Events by Type of OAB

	Botox	Dysport	Odds Ratio
UTI			
iOAB	15.3%	9.6%	0.59 (p = 0.10)
nOAB	18.4%	13.0%	1.48 (p = 0.29)
Haematuria			
iOAB	2.3%	4.3%	1.87 (p = 0.08)
nOAB	2.9%	1.6%	0.57 (p = 0.07)
Generalised Weakness			
iOAB	0.45%	0.2%	0.45 (p = 0.71)
nOAB	1.17%	1.98%	1.70 (p = 0.08)

Interpretation of results

The results show a similar rate of adverse events between Botox and Dysport. Urinary tract infection and macroscopic haematuria had a similar incidence and no life-threatening side effects were reported for either preparation. A comparison of voiding dysfunction was confounded by multiple definitions for PVR and criteria for de novo CISC. The lack of a standardised definition made the statistical analysis of these variable unreliable.

The pooled analysis identified a higher rate of generalised muscle weakness with Dysport. The effect was dose dependent and was reported primarily in patients receiving Dysport 750U or 1000U. All cases were self-limiting and resolved over a few weeks. The difference in generalised muscle weakness was no longer statistically significant when analysed across different types of OAB.

Limitations of this study include that some of the data is from observational studies and only a proportion is from randomised control trials. The observational studies report a wide incidence of adverse events suggesting that there may be under reporting in some studies. There is also significantly more data available for Botox compared to Dysport.

Concluding message

In general, adverse events are similar between Botox and Dysport. There may be a higher rate of generalised muscle weakness with Dysport but this was only statistically significant in pooled data and not maintained across different types of OAB.

References

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Disclosures

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