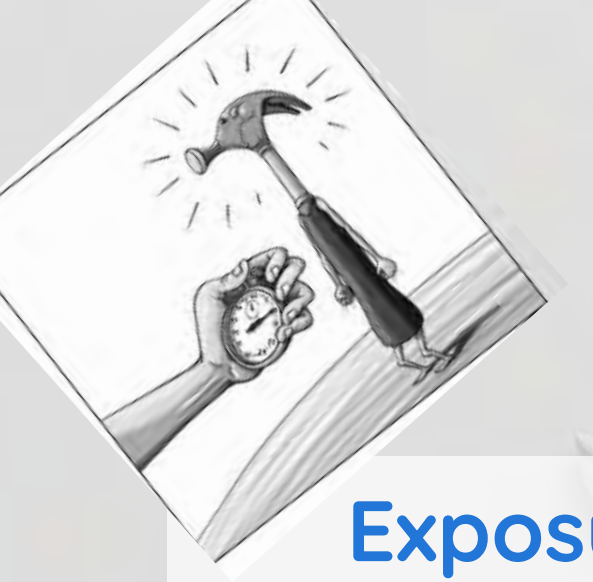

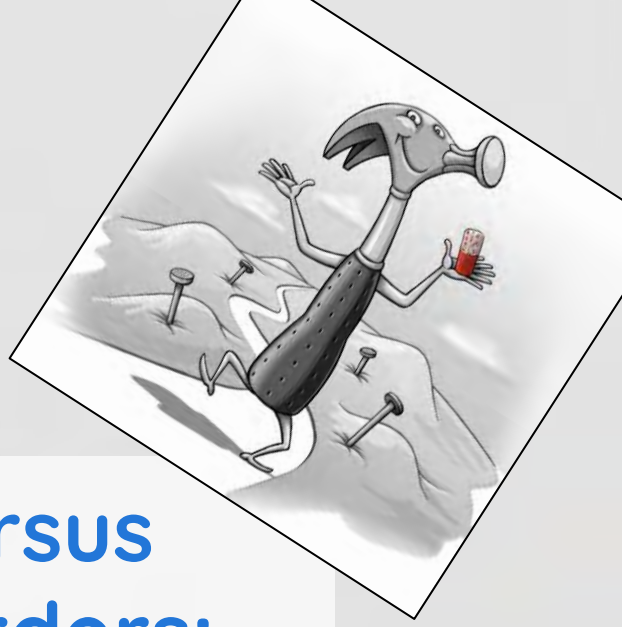

Exposure and Response Prevention versus Risperidone in the treatment of tic disorders: a randomized controlled trial

Including “a look behind the scenes” – facing challenges in research

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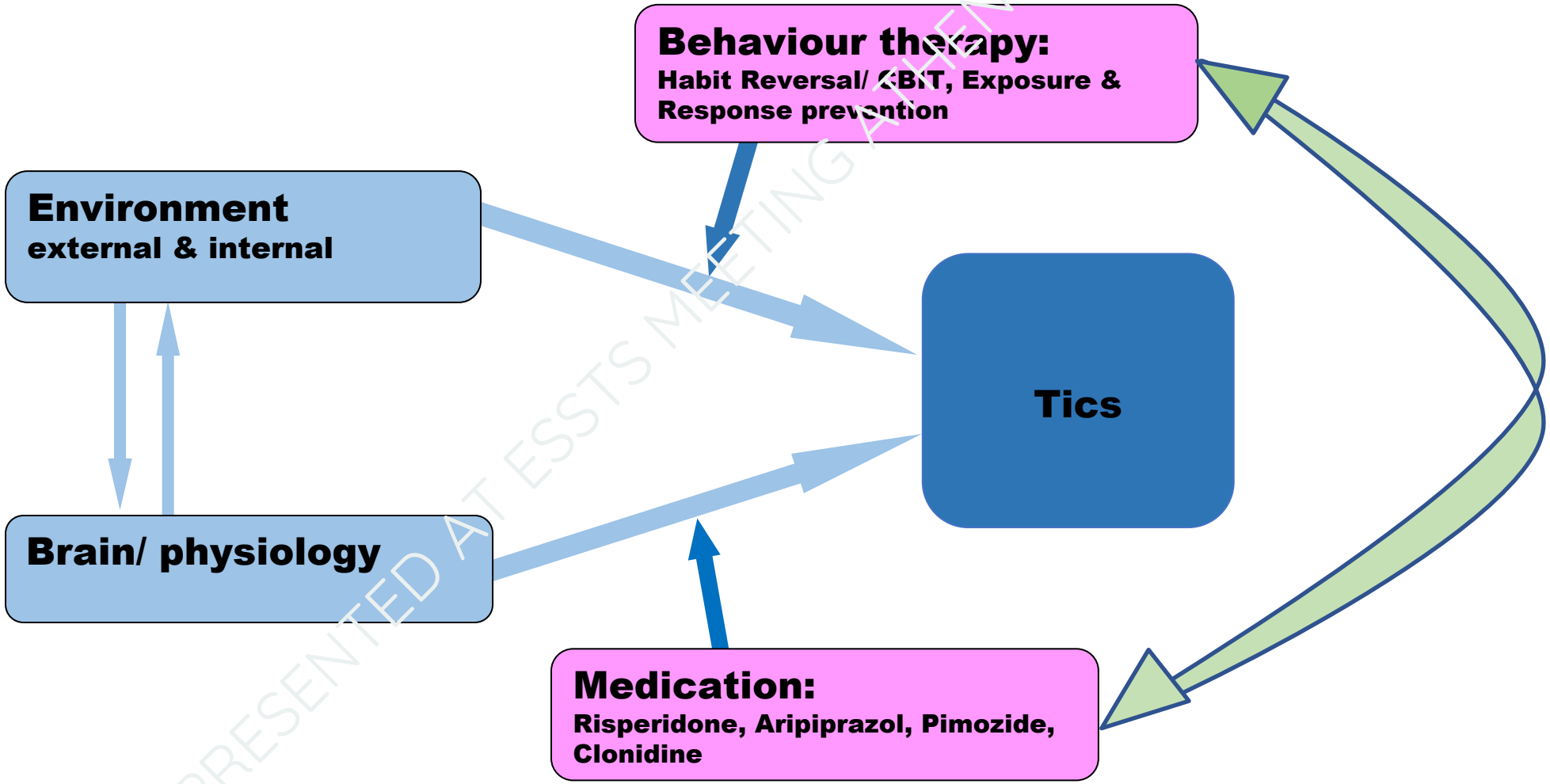
Treatment model of tics



What is already known?

Rizzo et al., 2018

- 110 outpatients, aged between 8 and 17 years
- Diagnosis CTD or TS
- 3 randomized groups:
  - Behaviour therapy (ERP or HRT)
  - Pharmacotherapy (PT; risperidone, aripiprazole or pimozide)
  - Psycho-education (PE; 2 sessions of 90 mins, 6 sessions of 60 mins)
- Results: BT and PT groups showed a significant reduction in the severity of tic symptoms, while the PE group did not show any improvement.

TRIBET study - which treatments did we compare & why?

Medication

Risperidone

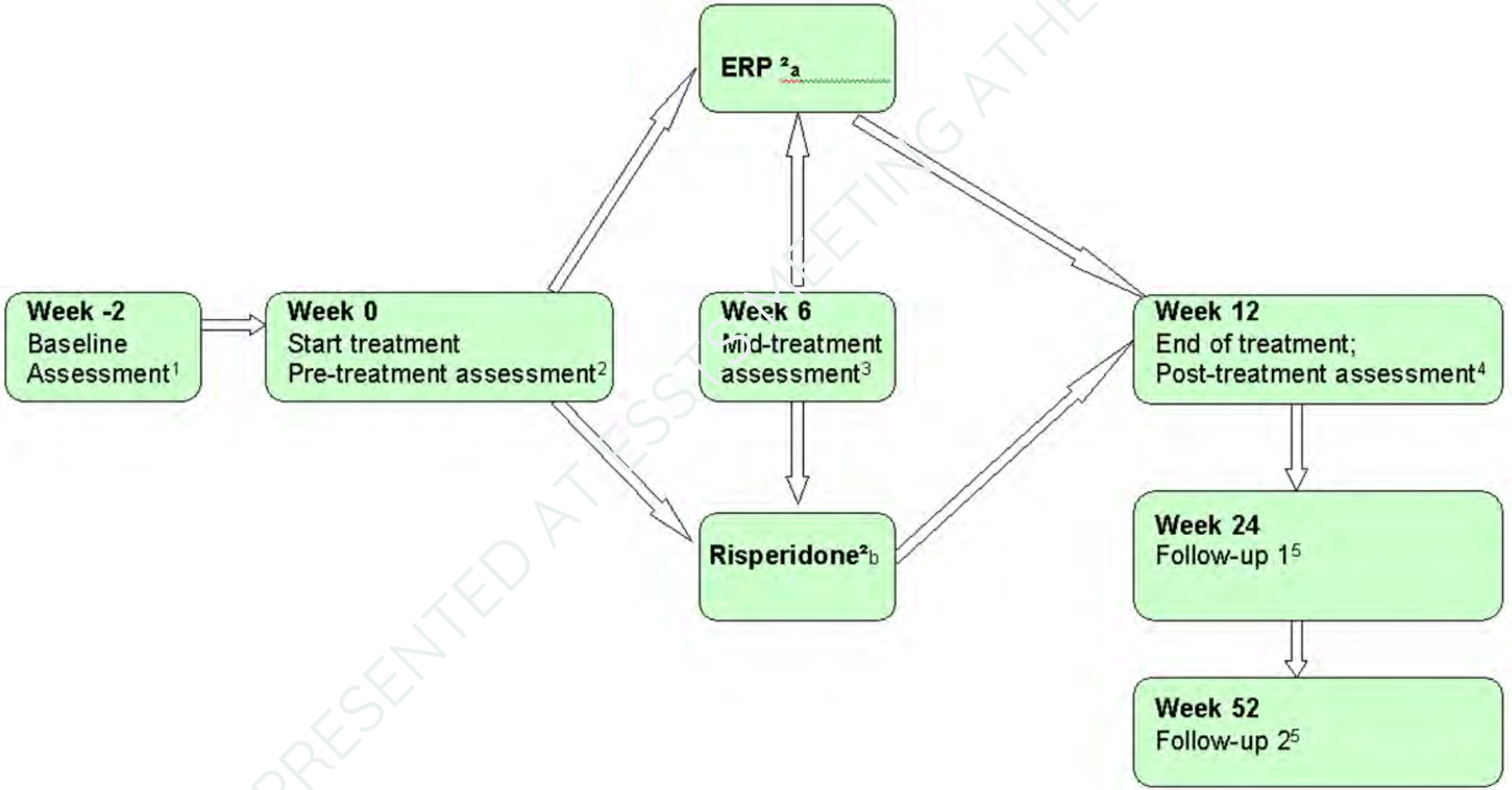
- A-level of evidence
- Best evidence available according to the first European Guidelines for Pharmacological treatment (Roessner et al, 2011)
- Most used in Europe at start of the study, according to a survey in European experts (Roessner et al., 2011)
- Effect sizes of 0.9-1.0 (Scahill et al, 2003)

Behaviour therapy

Exposure and response prevention (ERP)

- is seen as a first-line intervention for TS, according to the European Guidelines (Andren et al., 2022)
- Equally effective as HRT (Verdellen et al., 2004)
- Effect sizes of 1.42 (Verdellen et al., 2004)

TRIBET – Study Design



Patient inclusion – you can't always get what you want

- Aimed for 80 patients (power calculations)
- A total of n=238 patients with TD or CTD were invited to participate ☺
- A total of n=118 were eligible for the study ☺☺

BUT.....

- n= 83 patients refused to participate (70%!) ☹
  - clear preference for ERP (82%)
  - Clear preference for medication (4%)
  - Other reasons (14%)
- n=5 were withdrawn before start of treatment
- Final sample of participants was n=30.... Instead of 80 ☹☹

Scientific research means… learning to be flexible….

- Change to **Bayesian statistics**: working with predefined hypotheses

  - computes the support for each hypothesis given the observed data
  - the resulting numbers provide the relative support for one hypothesis over another

  - BF = 1 means that two hypotheses are equally supported by the data
  - BF > 1 indicates that the first hypothesis outperforms the second
  - BF < 1 means the opposite

- This is also calculated as **Posterior Model Probability (PMP)**, which means the relative support within the set of H1, H2, H3. The closer to 1, the stronger the relative support.
- Contrary to classical statistics, no dichotomous decisions (i.e., the result is significant or not) are made

Predefined hypotheses used in this study

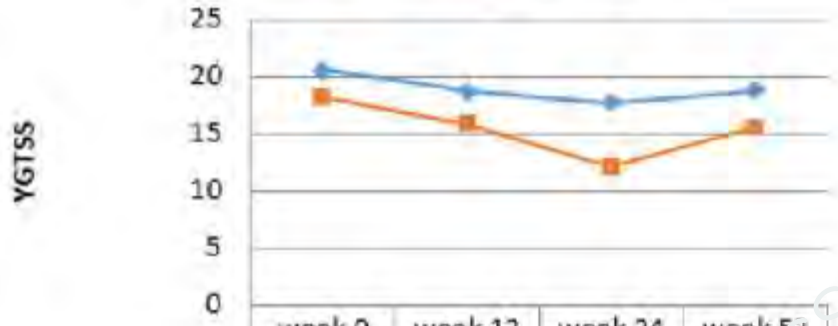
Predefined hypotheses:

- *Hypothesis 1: ERP > Risperidone; both treatments are effective*
- *Hypothesis 2: ERP=Risperidone; both treatments are equally effective*
- *Hypothesis 3: ERP=Risperidone; both treatments are not effective*

- Tested for both YGTSS and GTS-QOL
- Tested for week 0-12 (direct effect)
- Tested for week 12-24 and week 12-52 (long term effects/ relapse)

Raw results

Results according to YGTSS



	week 0 (n=30)	week 12 (n=29)	week 24 (n=23)	week 52 (n=21)
risperidone	20.5 (8.1)	18.7 (8.5)	17.7 (11.2)	18.8 (12.9)
ERP	18.1 (4.7)	15.8 (7.8)	12.0 (6.1)	15.5 (8.2)

Results according to GTS-QoL

	week 0 (n=29)	week 12 (n=28)	week 24 (n=23)	week 52 (n=14)
risperidone	21.9(20.2)	22.4 (19.1)	14.5 (15.4)	17.3 (15.9)
ERP	18.2 (12.8)	15.4 (14.5)	12.1 (11.1)	9.5 (9.6)

Results YGTSS: ERP and RISP equally effective, except for week 12-24, where ERP>RISP

	Week 0-Week 12 (N=25)			Week 12- Week 24 (N=21)			Week 12-Week 52 (N=20)		
Hypothesis	BF	PMP	Relative support	BF	PMP	Relative support	BF	PMP	Relative support
H1 ERP>RISP	3.87	0.38	Moderate	**3.92***	**0.78***	**Very strong**	2.52	0.32	Moderate
H2 ERP=RISP	**5.35***	**0.53***	**Strong**	1.06	0.21	Weak	**4.59***	**0.58***	**Strong**
H3 No effect	0.89	0.09	Weak	0.05	0.01	Very weak	0.79	0.10	Weak

BF= Bayes Factor of H1/2/3 versus unconstrained hypothesis.
PMP = Posterior Model Probability (relative support within the set of H1, H2, H3)

Results GTS-QOL: a delayed effect for ERP over RISP

	Week 0-Week 12 (N=24)			Week 12- Week 24 (N=22)			Week 12-Week 52 (N=14)		
Hypothesis	BF	PMP	Relative support	BF	PMP	Relative support	BF	PMP	Relative support
H1 ERP>RISP	2.75	0.21	Weak	**3.70***	**0.70***	**Strong**	***3.08**	**0.82***	**Very strong**
H2 ERP=RISP	4.60	0.36	Moderate	1.51	0.29	Moderate	0.60	0.16	Weak
H3 No effect	**5.50***	**0.43***	**Moderate**	0.05	0.01	Very weak	0.08	0.02	Very weak

BF= Bayes Factor of H1/2/3 versus unconstrained hypothesis.
PMP = Posterior Model Probability (relative support within the set of H1, H2, H3)

And what about side effects?

- UKU Side Effects Rating Scale
- Non-parametric tests (Independent Samples – Mann-Whitney U test) on difference scores between baseline and week 6, and baseline and week 12.
- After 6 weeks of treatment, RISP showed more tiredness (p=0.013) and weight gain (p=0.005)
- Patients using medication gained about 3 kg in this period
- After 12 weeks, the side effects seemed to have stabilized over the second half of treatment.

Take home messages

- Behavior therapy and medication seem to be equally viable options in the treatment of tic disorders
- Slight preference for ERP based on follow-up results in tic severity and quality of life, and side effects.
- Preference from patients before being randomized might be a result in itself....

Clinical conclusion: include both behaviour therapy and medication in your psycho-education, and let the patient choose!

With thanks to the whole TRIBET – team!

- **T**ic disorder
- **RI**speridon versus
- **BE**haviour Therapy
- **T**reatment

On repeat? Scan here for fulltext article:

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