

## Lessons learned from randomized-controlled studies in patients with Tourette syndrome and chronic tic disorders

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### BACKGROUND

ONLINE-TICS (1) and CANNA-TICS (2) are multi-centered randomized controlled trials (RCTs) investigating efficacy of internet-delivered Comprehensive Behavioral Intervention for Tics (iCBIT) and the cannabinoid nabiximols, respectively, in patients with Tourette syndrome (TS).

Both trials were designed similarly, particularly related to population and psychometric measurements. Both studies did not reach their primary endpoint but showed strong trends towards significance.

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### RESULTS

CANNA-TICS trial enrolled n = 97 patients, ONLINE-TICS trial enrolled n = 161 patients.

We excluded all patients that participated in both trials (n = 20).

Patient populations differed substantially at baseline with respect to tic severity according to the YGTSS-TTS:

(ONLINE-TICS: mean 24.4 (SD±8.1) versus CANNA-TICS: mean 28.8 (SD±8.7), p <0.0001).

Only descriptive analyses on the course of the YGTSS-TTS were possible.

Even though the YGTSS-TTS at baseline differed between trials, the change of the YGTSS-TTS over the course of the trials was quite similar (Figure 1).

We identified the following baseline variables as factors favoring participation in the CANNA-TICS study:

- a YGTSS-TTS ≥ 28 (OR 2.2, 95%-CI [1.3; 3.9], p = 0.0044)
- housing situation "living alone" (OR 2.0, 95%-CI [1.1; 3.6], p = 0.0179)
- presence of psychiatric comorbidities (OR 1.9, 95%-CI [1.1; 3.2], p = 0.0253)

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### METHODOLOGY

Descriptive analyses of common baseline variables were performed to assess similarities and differences between trial populations using two-sample t-test. Furthermore, the Yale Global Tic Severity Scale-Total Tic Score (YGTSS-TTS) was compared over the course of the trials. Prognostic factors for study participation were identified exploratory in multivariable logistic regression. Although in both RCTs, the YGTSS-TTS had been used to assess the primary endpoint, different approaches in analysis were applied. While in ONLINE-TICS analysis of the YGTSS-TTS was applied continuously, in CANNA-TICS a dichotomous responder criterion was defined (3).

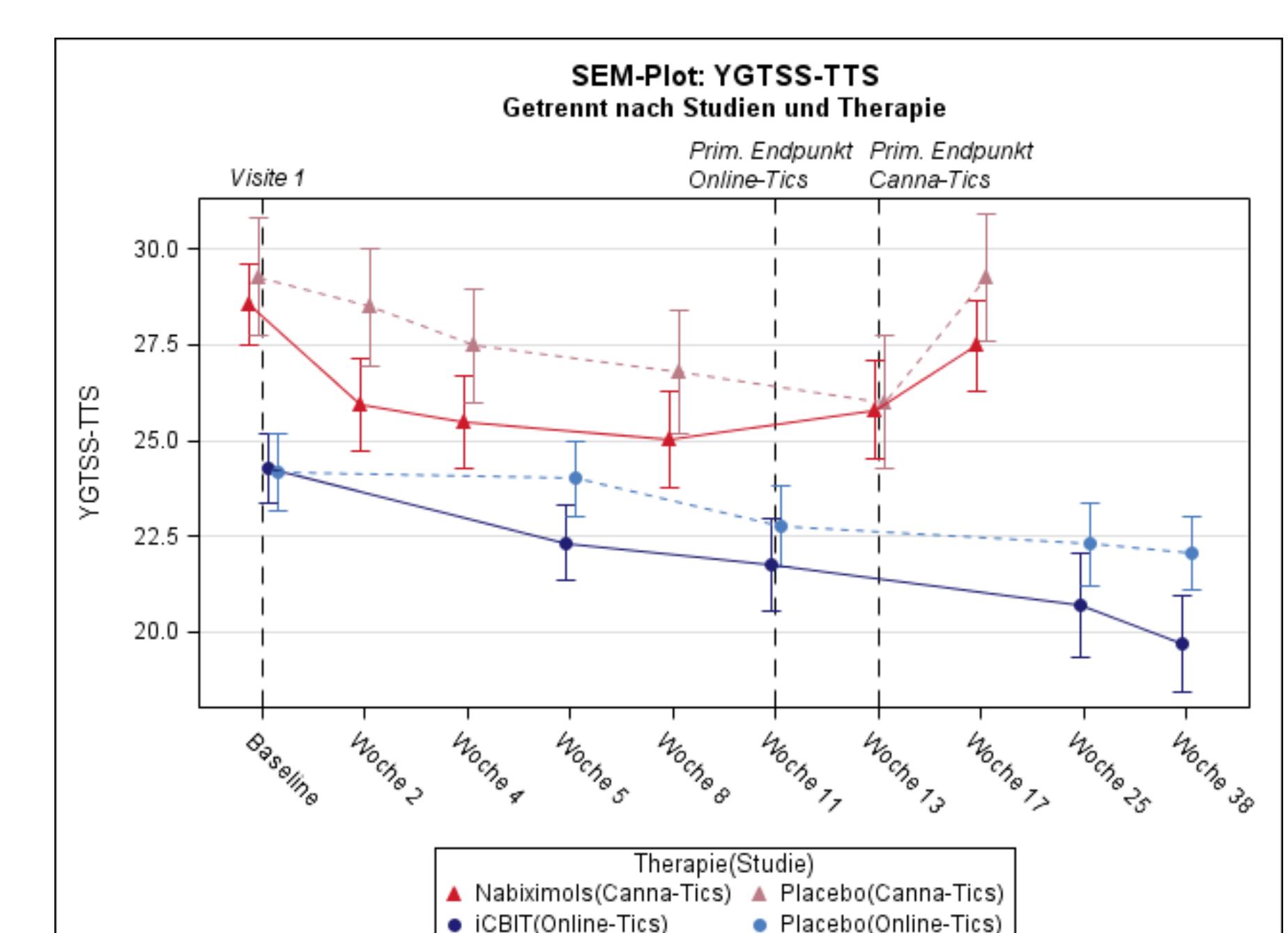
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### CONCLUSION

We identified substantial differences in the CANNA-TICS population compared to the ONLINE-TICS population, yet the same study centers were involved in both studies, nearly the same psychometric measurements were used and similar in- and exclusion criteria were applied.

- This may indicate selection bias and allows for a discussion about patients' preconceptions (e.g. prejudices against medical cannabis) in different treatments for TS and tic disorders.
- A joint evaluation of different RCTs may provide valuable new insights into different kinds of treatment for patients with TS and other chronic tic disorders.

Figure 1: Change of the YGTSS-TTS over the course of the trials (presented are all patients with available data)



### REFERENCES

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