Validation of the Tele-RITA-T (Rapid Interactive Screening Test for Autism in Toddlers)

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Background

- The RITA-T (Rapid Interactive Screening Test for Autism in Toddlers) is an interactive ASD level II screening test
- Easy to learn, to administer and score reliably within 10 minutes
- **Cut off scores:** <11: low risk; 12-16: medium risk and >16 high risk for ASD
- Does not rely on language
- Kit includes pictures to represent all racial ethnicities

Autism Diagnosis in Toddlers

- Diagnosis of ASD:made close to age 4 years; further delays in minorities
- Shortage of diagnosticians: need other systems to improve access
- With the COVID-19 pandemic, telehealth evaluations developed
- No current validated tool with good psychometric properties for the screening of ASD in toddlers by telemedicine

Objectives

- To validate a modified version of the RITA-T as a telehealth screening tool for those 18-36 months
- Identify a cut off score to differentiate between ASD risk and non-ASD
- Develop manual and training

Methods

- Primary Care & Early Intervention Providers trained on the RITA-T
- Workshops, intake forms, and RITA-T clinics (Poster #41461)
- Telehealth RITA-T
  - Scoring sheet: Modified from RITA-T items and scoring sheet: maximum score of 16 vs. 30 for the in-person RITA-T
  - Total 7 vs. 9 items to administer
  - Clinician directs parents with clear instructions to perform prompts using the child's toys in a home setting and the clinician scores reactions
- Diagnostic evaluation: history, observations, DSM-5, CARS-2ST; MSEL
- Then toddlers divided in 2 groups based on diagnosis: ASD and non-ASD/Developmental Delay

Table 1. Demographics

	Non ASD (n=24)	ASD (n=85)	p-value
Female sex, n (%)	11 (46)	28 (33)	0.24
Age in months, mean (SD)	30 (6.1)	30 (5.1)	0.91

Statistical Methods

- Calculated Sensitivity/Specificity and Positive Predictive Value at all scores to identify optimal cut off score
- Analysis was completed with and without item GB (reaction to neutral emotion) due to difficulty reproducing the press over Telehealth

Results

Table 2. Sensitivity, specificity, PPV, and NPV for different cutpoints of RITA-T total score for predicting correct diagnosis of ASD and No ASD

RITA-T total score	Sensitivity	Specificity	PPV	NPV
3	1	0	0.78	-
4	1	0.17	0.81	1
5	1	0.17	0.81	1
6	0.99	0.17	0.81	0.80
7	0.98	0.25	0.82	0.75
8	0.92	0.42	0.85	0.59
9	0.84	0.54	0.87	0.48
10	0.74	0.58	0.86	0.39
11	0.61	0.71	0.88	0.34
12	0.54	0.79	0.90	0.33
13	0.48	0.83	0.91	0.31
14	0.38	0.83	0.89	0.27
15	0.21	0.92	0.90	0.25
16	0.15	1	1	0.25
17	0.08	1	1	0.24
18	0.02	1	1	0.22
19	0	1	-	0.22
20	0	1	-	0.22

Table 3. Sensitivity, specificity, PPV, and NPV for different cutpoints of RITA-T score minus total GB for predicting correct diagnosis of ASD and No ASD

RITA-T total score	Sensitivity	Specificity	PPV	NPV
3	1	0.08	0.79	1
4	1	0.25	0.82	1
5	0.96	0.29	0.83	0.70
6	0.86	0.50	0.86	0.50
7	0.73	0.67	0.88	0.41
8	0.58	0.75	0.89	0.34
9	0.52	0.83	0.92	0.33
10	0.43	0.83	0.90	0.29
11	0.27	0.88	0.88	0.26
12	0.17	0.96	0.93	0.25
13	0.10	0.96	0.89	0.23
14	0.02	1	1	0.23
15	0	1	-	0.22
16	0	1	-	0.22
17	0	1	-	0.22
18	0	1	-	0.22
19	0	1	-	0.22
20	0	1	-	0.22

Telehealth RITA-T Cut-Off Level

- A total of **125** toddlers were enrolled. Of those, 2 were excluded, 14 were lost to follow-up
- From **109**: **85** had diagnosis of ASD; **24** Non-ASD. Ages varied between 17 and 36 months (mean 30 months)
- The telehealth RITA-T:
  - Compared to the final clinical diagnosis to determine the optimal cut-off score
  - **Cut-off score**: <5: low risk; 5-9: moderate risk; >9: high risk for ASD
  - **Score >9 correlates with in-person RITA-T score of >15**
- **High correlation: in-person RITA-T and Telehealth RITA-T with a Pearson correlation coefficient of 0.67 (p-value=0.0003)**

Dissemination and Increasing Collaborations

- Material for remote evaluations (on website and free to download): Early Autism Screening Inventory (EASI)
- Videos of administration/examples of Telehealth RITA-T
- Manual and scoring sheet completed
- Training associated with in person RITA-T training

Conclusions

- RITA-T fits nicely in a level-2 screening model to improve access and early diagnosis
- Tele-RITA-T correlates with in-person RITA-T to identify high risk toddlers

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3. Lemay, J.-F., Amin, P., Langenberger, S., & Mcleod, S. (2020). Experience with the rapid interactive test for autism in toddlers in an autism spectrum disorder diagnostic clinic. Journal of Developmental & Behavioral Pediatrics, 41(2), 95–103.

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