Performance of FACT-GOG-NTX to Assess Chemotherapy-Induced Peripheral Neuropathy (CIPN) in Pediatric Hodgkin Lymphoma (HL)

Sharon M Castellino MD, MSc, Angie Mae Rodday, PhD, MS, Qinglin Pei PhD, Min Li, MS, Rizvan Bush, MS, Frank Keller, MD, Tara O. Henderson, MD, MPH, Kara M Kelly, MD, David Cella PhD, Susan K. Parsons, MD MRP

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Background

- CIPN reporting has depended on clinical toxicity grading scales: Neuropathy subscale of Common Terminology Criteria for Adverse Events (CTCAE); Balis Pediatric Scale of Peripheral Neuropathy in children.
- The Functional Assessment of Cancer Therapy/Gynecologic oncology group-Neurotoxicity (FACT-GOG-NTX) is a validated 11-item self-report measure of CIPN in adults receiving various chemotherapy.
- There are no validated self-report measures of CIPN in children.
- Study Aim: To assess the psychometric properties of the FACT-GOG-NTX in a pediatric population at risk for CIPN while receiving: vincristine (**V**) ± brentuximab vedotin (**Bv**) as part of 5 cycles of multi-agent chemotherapy (standard arm: AB**V**E-PC; experimental arm: **Bv**- A**V**EPC) for high risk HL

(A=adriamycin; B=bleomycin; E=etoposide; P=prednisone;C=cyclophosphamide)

Methods

Sample:

- Youth and parents of children (5-18 years) with newly diagnosed high risk HL enrolled on AHOD1331 (NCT02166463)

CIPN assessment – Patient reported (PRO):

- Youth (age >11 years) and parent proxies (of all) provided serial assessment of the child's sensory and motor symptoms and function using a modified version of the FACT-GOG-Ntx
  - Modifications included: changing "voice" from you to your child; and removal of two questions associated with use of platinum-containing chemotherapy in collaboration with instrument author (D. Cella)
  - Reporting time points: Baseline (T1); Day 8 of cycle 2 (T2); Day 8 of cycle 5 (T3); End of therapy (T4), 12 months off therapy (T5)
- **Provider assessment of CIPN**
  - CIPN grade ≥ 2 reported at every cycle
- **Statistical Analysis**
  - Cronbach's alpha coefficient and inter class correlation (ICC) were computed for parent and youth raters
  - FACT-GOG NTX 4-item sensory subscale scores (NTx-4) were correlated with any neuropathy ≥ grade 2 (=yes) on the Balis Scale and tested by Wilcoxon two-sample test

Results

Table 1. Patient Characteristics, n=309

Age years, median (range)	**15.5 (5-18)**
Male	50%
White	76%
Hispanic	17%
Stage IIB bulk; IIIB IVA, IVB	 42% 58%
B symptoms	75%
Any radiation	57%
Any CIPN Grade 2 Grade 3	 14% 6.5%

Psychometric Performance of FACT-GOG-NTX:

- Cronbach alpha > 0.8 for parent and youth rater
- Inter-rater agreement: ICC= 0.8.

Table 2. FACT NTx-4 scores* (mean, min-max) by rater over time

	T1	T2	T3	T4	T5
Youth	15.3 (3-16)	14.5 (5-16)	13.5 (0-16)	14.6 (0-16)	15.3 (6-16)
Parent	15.3 (2-16)	14.6 (4-16)	13.7 (0-16)	14.6 (0-16)	15.5 (8-16)

*FACT NTx-4 max possible score = 16; Lower scores indicate more impairment

Results

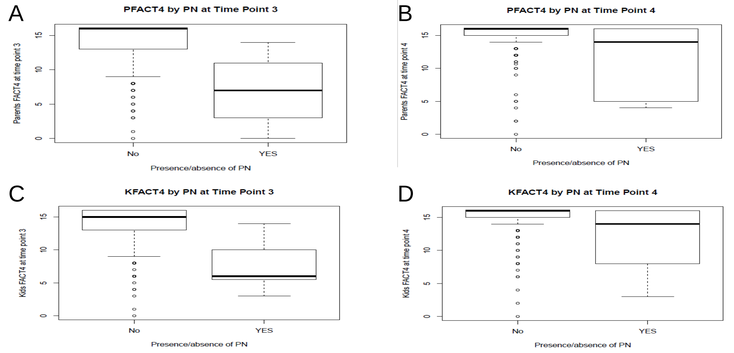

Figure 1. Lower mean FACT NTx-4 scores correlated to any clinically graded CIPN (=yes) in parent (A, B) ($p < 0.001$) and youth (C: $p<0.001$, D: $p < 0.002$) rater.

Conclusions

- The FACT-GOG-NTX 4 item sensory subscale was reliable for parent and youth raters and has strong intra-rater agreement in a pediatric population with HL
- Validity of pediatric patient-reported outcomes using the FACT-GOG-NTX is demonstrated by significantly lower scores among patients with clinical evidence of CIPN. Group mean changes of >1 point were seen for both raters, as incidence of CIPN increased.
- Preliminary data indicates recovery from CIPN with time off therapy (T1=T5,Table 2).
- Future analyses will evaluate sustainability of the CIPN recovery at 36 months off therapy.
- Future analyses will also allow evaluation of patient reported CIPN by treatment arm of AHOD1331, and indicate whether the addition of Bv to vincristine results in differing rates of CIPN in HL patients.

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