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EDITORIAL COMMENTARY

Pediatric Nausea Assessment Tool (PeNAT): Translation and Psychometric Evaluation in the Local Language is the Way Forward

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It is a commendable effort by Rasheed et al. to report the outcomes of the translation and psychometric evaluation of the Hindi language version of the Pediatric Nausea Assessment Tool (PeNAT) in the Indian population [1]. Nausea and vomiting are common adverse effects of chemotherapy. It significantly impacts the quality of life in children with cancer. In addition, it often results in distress to parents and caregivers and negatively impacts compliance with therapy. Chemotherapy-induced nausea and vomiting (CINV) can be reduced in intensity or prevented entirely with careful assessment and choosing the appropriate anti-emetic prophylaxis regimens [2].

There are standard guidelines for the prevention of CINV. However, in clinical practice, suboptimal control of emesis and breakthrough CINV is relatively common. The anti-emetic prophylaxis must be augmented in the subsequent chemotherapy cycles for optimal control or prevention of CINV. It mandates optimal assessment of nausea and vomiting while receiving chemotherapy.

Vomiting, being a sign, renders it easy to assess objectively in children. Nausea is a subjective symptom; its assessment is often challenging in children. This unique problem has resulted in the omission of nausea assessment in several pediatric anti-emetic trials. In addition, caregivers and physicians inadequately report or respond to a child's nausea due to i) suboptimal self-reporting of nausea by children due to developing communication skills, ii) limited availability of validated nausea assessment tools in children, and iii) physician's emphasis and gratification on control of vomiting rather than nausea. Adequate nausea control is equally essential as the control of vomiting.

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The original PeNAT-English validated among children 4–18 y utilizes a standard script and visual scale wherein a child can differentiate between nausea and vomiting. It also helps identify a particular word or phrase used in the child's family to describe nausea [3]. India is a linguistically diversified nation with many languages. Hindi is India's most widely spoken language (54%) [4]. In addition, there are numerous dialects spoken in each language. Indeed, it might potentially be confounding even after an accurate translation. In addition, there could be multiple synonyms for a single word. The current study could overcome these limitations by adopting a stringent methodology. The PeNAT-Hindi was appropriately translated, pretested, and pilot-tested [1]. The study also emphasized eliciting correct words for denoting nausea in a child's family. It enabled the child to report the symptoms appropriately.

The current study had a good test-retest reliability of PeNAT-Hindi scores. The PeNAT-Hindi had good criterion validity wherein children could differentiate between nausea and vomiting/retching across age groups (4–9 y, 13–18 y), sex (male/female), chemotherapy regimens (highly/moderately emetogenic chemotherapy), except in the subgroup of 9-<13 y age group. It was attributed to i) a higher proportion of children receiving highly emetogenic chemotherapy and ii) better emesis control in this subgroup as they often receive neurokinin-1 antagonists. The PeNAT-Hindi scores application resulted in an appropriate parental assessment of i) the severity of nausea and ii) discriminating pain from nausea. However, the responsiveness of PeNAT-Hindi was modest, though it could significantly assess the improvement or worsening of the severity of nausea. It was due to the short follow-up period (24 h) after the administration of chemotherapy. It leaves scope for additional prospective evaluation, with longer follow-up (up to 120 h) after completion of chemotherapy.

PeNAT-Hindi can be used in clinical practice or research to determine the prevalence of nausea and its severity in children receiving chemotherapy. It will facilitate tailoring

the appropriate CINV prophylaxis in the Hindi-speaking Indian population. A significant pitfall of psychometric tests is the cultural and language barrier. In the Indian context, more language-specific psychometric evaluations are needed to overcome nationwide language barriers. Translation and psychometric evaluations can be extended to several studies that include the quality of life of patients with cancer, cancer survivors, and the psychological impact on parents.

Declarations

Conflict of Interest None.

References

1. Rasheed AA, Ganguly S, Pushpam D, et al. Translation and psychometric evaluation of the hindi language version of the Pediatric Nausea Assessment Tool (PeNAT) in the Indian population. Indian J Pediatr. 2023. https://doi.org/10.1007/s12098-022-04436-1.
2. Totadri S. Prophylaxis and management of antineoplastic drug induced nausea and vomiting in children with cancer. Pediatr Hematol Oncol J. 2016;1:50–5.
3. Dupuis LL, Taddio A, Kerr EN, Kelly A, MacKeigan L. Development and validation of the pediatric nausea assessment tool for use in children receiving antineoplastic agents. Pharmacotherapy. 2006;26:1221–31.
4. Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, GoI, India. Census tables. In: Census of India. Available at: https://censusindia.gov.in/census.website/data/census-tables. Accessed on 18 Dec 2023.