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R18 Association between patient reported outcomes and vibratory perception threshold test for measuring neurotoxicity in patients with chemotherapy induced peripheral neuropathy

G. Lunardi[1], R. Magarotto[2], A. Inno[2], P. Cassandrini[2], M. Cirillo[2], S. Duranti[2], M. Nicodemo[2], V. Picece[2], M. Turazza[2], F. Marchetti[2], B. Micheloni[2], M. Valerio[2], L. Zenari[2], S. Gori[2]

[1]*Ospedale Sacro Cuore Don Calabria, Negrar*
[2]*Ospedale Sacro Cuore Don Calabria, Negrar - Verona*

Background: Chemotherapy-induced peripheral neuropathy (CIPN) is a dose-limiting complication of cancer treatment and sometime a long lasting toxicity that affects quality of life of cancer patients (pts). The assessment and perception of CIPN sensory impairment between clinicians and pts has not yet been fully addressed, and an objective tool for its evaluation is still lacking. Biothesiometry is a simple, non-invasive, fast and cheap tool to evaluate sensory impairment in neuropathic pts. We evaluated the vibration perception threshold (VPT) by biothesiometry in patients affected by CIPN.

Patients and methods: Patients who received taxanes and/or platinum (Pt)-based chemotherapy and with symptomatic peripheral neuropathy were eligible for the study. Peripheral neuropathy was graduated by two validated patient-based questionnaires: the Patient Neurotoxicity Questionnaire (PNQ) and the Functional Assessment of Cancer Therapy/Gynecologic Oncology Group-Neurotoxicity (Fact/GOG-Ntx) questionnaire. VPT was calculated as sum of values measured on both the big toes (VPTbt) and on both the external malleoli (VPTem). Single measure VPT range was 0.1-60.0 Volts (V). VPTs by groups were reported as median (Inter-quartile range, IQR). Statistical analysis was performed by Mann-Whitney test.

Results: 37 pts (9 males 28 females) with symptomatic CIPN were enrolled. Median (range) age was 62 (32-80) years. According to the PNQ and FACT/GOG-Ntx questionnaire scores, 21 and 16 pts had Grade (pG) 1 and pG2 neuropathy, respectively. Age was not statistically different between the two groups ($p = 0.14$). Median (IQR) big toes VPTbt was 12.4V (5.4-29.5) and 42.4V (18.3-120) in pG1 and pG2 neuropathic pts, respectively ($p = 0.003$). Median (IQR) external malleoli VPTem was 4.0V (2.7-6.9) and 11.5V (4.0-91.5) in pG1 and pG2 neuropathic pts, respectively ($p = 0.023$).

Conclusions: VPT measured on big toes and external malleoli was lower in pG1 compared to pG2 CIPN pts and the difference was statistically significant. Biothesiometry, combined with clinician assessment and patient reported outcome, might be a useful tool to achieve a more comprehensive knowledge of CIPN and a reliable assessment of both the severity and the quality of CIPN-related sensory impairment.

abstracts

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