

# Psychometric Evaluation of Two Scales Assessing Functional Status and Peripheral Neuropathy Associated With Chemotherapy for Ovarian Cancer: A Gynecologic Oncology Group Study

Lois Almadrones, MS, RN, CFNP, MPA, Deborah B. McGuire, PhD, RN, FAAN, Janet Ruth Walczak, MSN, RN, CRNP, Colleen M. Florio, PhD, and Chunqiao Tian, MD, MPH

**Purpose/Objectives:** To evaluate the psychometric properties of two adapted scales, one for functional status and one for peripheral neuropathy secondary to neurotoxic chemotherapy.

**Design:** Repeated measures methodologic design conducted within a Gynecologic Oncology Group (GOG) phase III clinical trial that randomly assigned patients with advanced epithelial ovarian cancer to cisplatin and cyclophosphamide or cisplatin and paclitaxel.

**Setting:** 8 GOG institutions participating in the GOG clinical trial.

**Sample:** 88 evaluable outpatients enrolled in the GOG clinical trial. Sample size at time 1 (T1) was 88 patients and at time 2 (T2) was 67 patients.

**Methods:** All scales were administered at T1 (prior to initiation of chemotherapy) and T2 (after six cycles of chemotherapy but prior to second-look laparotomy). Internal consistency reliability, criterion validity, and construct validity were evaluated, and clinical application was explored.

**Main Research Variables:** Self-reported peripheral neuropathy and functional status (comprised of physical function and role function subscales), the GOG performance status scale, and the GOG toxicity criteria.

**Findings:** Reliability coefficients at T1 were physical function = 0.83, role function = 0.96, and peripheral neuropathy = 0.91; at T2, they were physical function = 0.83, role function = 0.92, and peripheral neuropathy = 0.89. At T1, physical function and role function correlated positively with performance status. Peripheral neuropathy correlated positively with GOG toxicity criteria used at T2. Principal component factor analysis suggested that the functional status scale had a two-factor structure with factors representing general and specific mobility and that the peripheral neuropathy scale also had a two-factor structure with factors representing foot and hand neuropathy.

**Conclusions:** The physical function, role function, and peripheral neuropathy scales have internal consistency, reliability, criterion validity, and construct validity. However, revision of the scales should address modification of specific questions and consider increasing the Likert scale from a four-point to a five- or seven-point scale to enhance clinical sensitivity and application.

**Implications for Nursing:** With minor modifications, these scales should be useful in assessing physical function, role function, and peripheral neuropathy in patients who receive agents that may cause peripheral neuropathy.

## Key Points . . .

- ▶ Peripheral neuropathy is a principal toxic effect of chemotherapy for ovarian cancer.
- ▶ Peripheral neuropathy interferes with self-care activities, mobility, and physical and role activities, and this may reduce domains of quality of life related to functional and role status.
- ▶ Self-report instruments may be a useful adjunct to measuring the subjective symptoms of peripheral neuropathy just as they have with pain and fatigue.
- ▶ With minor modifications and testing, these scales may be useful in assessing peripheral neuropathy symptoms in patients who receive neurotoxic chemotherapy.

*Lois Almadrones, MS, RN, CFNP, MPA, is a clinical nurse specialist in gynecology at Memorial Sloan-Kettering Cancer Center in New York, NY; Deborah B. McGuire, PhD, RN, FAAN, is a professor in the Department of Organizational Systems and Adult Health in the School of Nursing at the University of Maryland in Baltimore; Janet Ruth Walczak, MSN, RN, CRNP, is a nurse practitioner at Johns Hopkins Oncology Center in Baltimore, MD; Colleen M. Florio, PhD, was a cancer research scientist in the Gynecologic Oncology Group Statistical and Data Center at Roswell Park Cancer Institute in Buffalo, NY, at the time this was written and is currently the clinical director of Tobacco Cessation and Education Services at Glens Falls Hospital in New York; Chunqiao Tian, MD, MPH, is a statistician in the Gynecologic Oncology Group Statistical and Data Center at Roswell Park Cancer Institute. This study was supported by National Cancer Institute grants to the Gynecologic Oncology Group Administrative Office (CA 27469) and the Gynecologic Oncology Group Statistical Office (CA 37517) as well as an ONS Foundation New Investigator Grant to the primary author. (Submitted August 2002. Accepted for publication June 30, 2003.)*

Digital Object Identifier: 10.1188/04.ONF.615-623