



Fall risk and function in older women after gynecologic surgery



Karen L. Miller^{a,*}, Holly E. Richter^b, Charles S. Graybill^c, Leigh A. Neumayer^{d,1}

^a University of Utah, Department of Obstetrics and Gynecology, 30 North 1900 East, Salt Lake City, UT 84132, USA

^b University of Alabama at Birmingham, Department of Obstetrics and Gynecology, 1700 6th Av South, Suite 10382, Birmingham, AL 35233, USA

^c University of Utah, Department of Orthopaedics, University Orthopaedic Center, 590 Wakara Way, Salt Lake City, UT 84108, USA

^d University of Utah, Department of Surgery, 30 North 1900 East, Salt Lake City, UT 84132, USA

ARTICLE INFO

Keywords:

Fall risk

Balance

Functional status

Older women

Gynecologic surgery

ABSTRACT

Purpose of study: To examine change in balance-related fall risk and daily functional abilities in the first 2 post-operative weeks and up to 6 weeks after gynecologic surgery.

Materials and methods: Prospective cohort study in gynecologic surgery patients age 65 and older. Balance confidence (Activities-specific Balance Confidence Scale) and functional status (basic and instrumental activities of daily living) were recorded pre- and post-operatively daily for 1 week and twice the second week. Physical performance balance and functional mobility were measured pre- and 1 week post-operatively using the Tinetti Fall Risk Scale, Timed Up and Go, and 6-Minute Walk test. Measures were repeated 6 weeks after surgery. Non-parametric tests for paired data were used comparing scores baseline to post-operative (POD) 7 and to POD 42.

Results: Median age was 72 years (range 65–88). Fall risk was elevated during the first 2 post-operative weeks, greatest on the median discharge day, POD 2 ($p < 0.01$). Balance performance and functional mobility at 1 week were significantly lower than baseline ($p < 0.01$). Functional abilities declined, including new dependence in medication management at home in 22% of these independent and cognitively intact women.

Conclusions: After gynecologic surgery, older women's fall risk is highest on POD 2 and remains elevated from baseline for 2 weeks. Functional limitations in the early home recovery period include the anticipated (bathing, cooking, etc.) and some unanticipated (medication management) ones. This information may help with post-operative discharge planning.

1. Introduction

Older women in the United States undergo approximately a quarter million gynecologic surgeries annually (Erekson, Ratner, Walke, & Fried, 2012). By 2050 this demographic will have doubled, and 25% of older women will be over age 84 (Halaweish & Alam, 2015). Gynecologic surgery complication rates, while low, are higher in women of advanced age (Erekson, Yip, Ciarleglio, & Fried, 2011; Mahdi, Lockhart, & Maurer, 2015). Complication statistics rarely include two of the most important outcomes for older persons, the risk of injurious falls and the ability to perform tasks of daily living (functional ability) (Erekson et al., 2012; Van Cleave, Egleston, & McCorkle, 2011). As patients age, surgeons will be increasingly be called upon to understand and prevent age-related complications.

A knowledge gap exists in the immediate post-discharge period, when fall risk may be highest and functional status lowest. Surgeons are embracing “enhanced recovery” programs to improve geriatric

perioperative care, often shortening the length of stay. Surgeons must therefore oversee a substantial portion of recovery without adequate existing information. Evenson et al. concluded that recovery at home is sub-optimal for many patients after gynecologic surgery (Evenson, Payne, & Nygaard, 2012).

The objective of this prospective cohort study was to document the extent and duration of gynecologic surgery's impact on balance-related fall risk and functional abilities in the first two post-operative weeks in women age 65 years and older, with repeat subjective and objective assessment six weeks post-operative.

2. Materials and methods

2.1. Participants

This prospective, longitudinal study included a convenience sample of women age 65 years and older planning to have gynecologic surgery

* Corresponding author. Present address: Juneau Biosciences LLC, 2749 East Parleys Way, Suite 300, Salt Lake City, UT 84109, USA.

E-mail addresses: karen.miller@hsc.utah.edu (K.L. Miller), hrichter@uabmc.edu (H.E. Richter), chuck.graybill@hsc.utah.edu (C.S. Graybill), lnaumayer@surgery.arizona.edu (L.A. Neumayer).

¹ Present address: University of Arizona, Department of Surgery, 1501 N. Campbell Avenue, Room 4410, Tucson, AZ 85724, USA.

at two academic institutions. Following approval of the Institutional Review Boards, subjects were identified through contact with faculty colleagues and review of the surgery schedules. Eligible women were contacted either by telephone or in clinic during a pre-operative appointment from December 2004 to June 2006. Inclusion criteria required normal cognition verified with the Mini-Cog, a validated instrument consisting of a 3-item word recall and a clock drawing test (score ≥ 3 required) (Borson, Scanlan, Chen, & Ganguli, 2003). Other inclusion criteria were abilities to complete self-report instruments and physical performance measures. Walking aids were allowed. Written consent was obtained after verification of inclusion criteria. All gynecologic surgeries were included except those considered minor, outpatient procedures and anticipated to last less than one hour. Women with concurrent neurologic, orthopedic, or psychiatric conditions that prohibited completion of study procedures were excluded. All outcome measures (noted below) have been validated or are standardized and widely used, but no measures have been validated specifically in the post-operative period.

2.2. Outcome measures

2.2.1. Subjective balance and balance confidence measure

The Activities-specific Balance Confidence Scale (ABC) estimates the percent self-confidence that one would not lose one's balance during 16 separate theoretical activities, ranging from walking around the house to walking on icy sidewalks. (Powell & Myers, 1995) Scores are averaged for a total of 0 (worst) to 100 (best). Scores below 80, particularly below 68, correlate with high fall risk (Lajoie & Gallagher, 2004).

2.2.2. Objective balance (physical performance) measures

The Tinetti Fall Risk Scale (FRS) utilized, comprised of balance and gait components, is continuous from 0 (worst) to 28 (best), and categorizes low (25–28), moderate (19–24), and high (< 19) fall risk (Tinetti, 1986).

The Timed Up and Go (TUG) is the number of seconds to stand, walk 10 feet, return, and sit down, averaging two trials (Posiadlo & Richardson, 1991). It assesses balance, fall risk, and functional mobility (balance and gait maneuvers used in everyday life). A variety of cut-offs have been associated with increased fall risk, from > 10 s to > 20, with > 13.5 s commonly used (Shumway-Cook, Brauer, & Woollacott, 2000).

The 6-Minute Walk test records the distance walked in six minutes (Harada, Chiu, & Stewart, 1999). Originally for cardiovascular fitness, it evaluates mobility-related function and rehabilitation progress. It has been validated as a measure of recovery after colon surgery (Moriello, Mayo, Feldman, & Carli, 2008).

2.2.3. Functional ability measures

Subjects rated their ability to perform activities of daily living (ADL) (bathing, dressing, toileting, transferring from bed or chair, and eating) and instrumental activities of daily living (IADL) (telephone use, travel to places out of walking distance, grocery shopping, meal preparation, housework, laundry, taking medication, and managing money; Branch, Katz, Kneipmann, & Papsidero, 1984; Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963; Lawton & Brody, 1969) as completely independent, require assistance, or completely dependent. Abilities were verified with observed task performance at baseline (Kuriansky & Gurland, 1976). Post-operatively, subjects were asked to judge whether they would be able to perform activities even if prohibited by post-operative instructions. To assess the need for post-operative assistance, partial or complete dependence was classified as "dependent." The ADL of continence was omitted from the analysis, since it is frequently confounded by surgery and less reflective of the functional impacts of interest.

Table 1
Assessment Measures and Time Points.

Post-operative Day	Pre-op	1	2–6	7	10	14	42
Mini-Cog, SF-36	√						√
Subjective: ABC, ADL, IADL	√		√	√	√	√	√
Objective: FRS, TUG, 6 Minute Walk	√			√			√
Confusion Assessment Method		√	√ ^a				

Mini-Cog Screen for dementia (exclusion criterion).

SF-36 Medical Outcomes Study Short Form-36.

ABC Activities-specific Balance Confidence Scale.

ADL Activities of Daily Living scale modified from Katz.

IADL Instrumental Activities of Daily Living scale modified from Lawton.

FRS Tinetti Fall Risk Scale.

TUG Timed Up and Go test.

^a Confusion assessment method only during hospitalization.

2.2.4. General health-related quality of life

The Medical Outcomes Study Short Form-36 (SF-36), a validated general quality-of-life measure, includes eight distinct health concepts: (1) physical functioning, (2) role limitations due to physical health problems, (3) bodily pain, (4) general health, (5) vitality (energy/fatigue), (6) social functioning, (7) role limitations due to emotional problems, and (8) mental health (distress and well-being) (Ware & Sherbourne, 1992).

2.2.5. Post-operative delirium assessment

Delirium was assessed with the Confusion Assessment Method (CAM) only during hospitalization to confirm subjective accuracy and because delirium is an independent risk factor for falls (Inouye et al., 1990).

2.2.6. Measurement timeline

Within one month prior to surgery subjects independently completed baseline questionnaires of the ABC, ADL, and IADL (Table 1).

The three physical performance measures, Tinetti FRS, TUG, and 6-Minute Walk, were administered by either a site investigator, dedicated physical therapist, or study coordinator using a standardized protocol. Items were completed both in the hospital and at home. Falls, post-operative complications, and medical events were queried by phone every three to four days through post-operative day (POD) 14. All measures except the CAM were repeated six weeks post-operatively. Physical performance was tested POD 7 \pm 1 day and POD 42 \pm 6 days.

2.2.7. Analysis

The primary outcome was change in subjective (ABC) and objective (Tinetti FRS) balance measures from pre-operative baseline to POD 7. Secondary outcomes were daily reports of ABC, ADL, and IADL, and change from baseline to POD 7 in the TUG and 6 Minute Walk. Individual change scores in ABC, Tinetti FRS, TUG, 6 Minute Walk, and selected functional activities were analyzed with nonparametric tests for paired data comparing baseline to POD 7 and to POD 42. Assuming a two-sided test, alpha equal to 0.05, standard deviation (SD) of 16 for the ABC and 3.5 for the Tinetti FRS, there was 99% power to detect a difference between pre- and post-operative of 10 points on the ABC and a 60% power to detect a difference of three points on the Tinetti FRS with a sample size of 60 subjects. Due to the small sample size and absent normative data, no missing data were imputed. SAS 9.1 (SAS Institute, Cary, North Carolina) statistical software was used.

3. Results

Of 140 women approached to participate, 71 enrolled and 64 completed the study (Fig. 1). Seven dropped out, four because surgery was cancelled. The median age of those who did and did not enroll was

Download English Version:

<https://daneshyari.com/en/article/5500853>

Download Persian Version:

<https://daneshyari.com/article/5500853>

[Daneshyari.com](https://daneshyari.com)