Validation of the Six-minute Walking Test as a Measure of Postoperative Recovery After Pancreatic Surgery

Francesca Fermi MD MSc[1], Benedetta Bonomi MSc[1], Gustavo Corti[1], Martina Abati[1], Giovanni Guarneri MD[1], Andrea Tettamanti[1], Michele Reni MD[1], Massimo Falconi MD[1], Nicolò Pecorelli MD MSc[1]*

[1]*Division of Pancreatic Surgery, Pancreas Translational and Clinical Research Center, San Raffaele Scientific Institute, Milan, Italy*

***pecorelli.nicolo@hsr.it**

KEY MESSAGE: The six-minute walking test represents a valid measure of postoperative recovery. Our findings support its use as an outcome measure in studies evaluating interventions aimed to improve recovery after pancreatectomy

INTRODUCTION

- Recovery after surgery is a multidimensional and dynamic process
- The six-minute walking test (6MWT) evaluates the distance (meters) a patient is able to walk in six minutes. It's a multifactorial and validated measure of functional capacity
- Evidence regarding its context-specific construct validity remains limited

RESEARCH AIM

To contribute evidence regarding the construct validity of **6MWT** as a measure of recovery after pancreatic surgery

METHODS

Study design prospective observational trial at San Raffaele Scientific Institute (2020-2022).

Population: adult patients undergoing elective pancreatic surgery

6MWT and Duke Activity Status Index (DASI) time-points: preoperatively and 30 days after surgery.

CONSTRUCT VALIDITY

- Tested according to **COSMIN** recommendations
- Assessed based on known-groups hypotheses **(Table 1)** and correlation with DASI **(Figure 1)**

DATA ANALYSIS:

Linear regression adjusted by preoperative was used to calculate the mean difference (MD). A **MD ≥ 19** is deemed clinically meaningful. Correlation evaluated with Spearman's rank test

RESULTS

Sample Characteristics: 151 patients, age 67 [49-75] years, 50% female, 62% proximal pancreatectomy, 24% laparoscopic approach

Construct validity:

- The 6MWT was able to discriminate between patients expected to recover differently (MD ≥ 19 m) up to 30 days after surgery with **85% of the hypotheses confirmed**
- 6MWT was moderately correlated with DASI **(r= 0.52)**

Table 1. Hypotheses tested for construct validity

		Number of patients	MD (95% CI)
1.	Younger < 75 Years *vs.* Older ≥ 75 Years	122 vs. 19	+0.1 (-23 to +24)
2.	ASA I-II *vs.* ASA III+	**90 vs 61**	**+41 (+22 to +60)**
3.	Distal pancreatectomy *vs.* Proximal pancreatectomy	**57 vs 94**	**+49 (+31 to +68)**
4.	Laparoscopic surgery *vs.* Open surgery	**36 vs 115**	**+63 (+43 to +83)**
5.	LOS < 10 days *vs.* LOS ≥ 10 days	**73 vs 78**	**+101 (+84 to +117)**
6.	No severe complications *vs.* Severe complications	**116 vs 32**	**+107 (+87 to +127)**

Figure 1. Correlation 6MWT and DASI

