

中文題目：營養狀態對於心臟病患接受介入性導管治療預後的影響

英文題目：Association Between Preoperative Nutritional Status and Clinical Outcomes of Patient with Coronary Artery Disease Undergoing Percutaneous Coronary Intervention

作者：林淑馨<sup>1</sup>，陳素真<sup>2</sup>，呂信邦<sup>2,3</sup>，周嘉裕<sup>2</sup>，林幸榮<sup>2,3</sup>，陳雲亮<sup>2,3</sup>，潘如濱<sup>2</sup>，陳嬰華<sup>2</sup>，常敏之<sup>2</sup>，吳道正<sup>2</sup>，盧澤民<sup>2,3</sup>，鄭浩民<sup>2</sup>，許百豐<sup>2,3</sup>，黃柏勳<sup>2</sup>，吳承學<sup>2</sup>，黃金洲<sup>2</sup>，宋思賢<sup>2</sup>，黃少嵩<sup>2,3</sup>，李慶威<sup>2</sup>，林彥璋<sup>2</sup>，陳適安<sup>2</sup>

服務單位：<sup>1</sup>台北榮民總醫院內科部，<sup>2</sup>台北榮民總醫院心臟內科，<sup>3</sup>台北榮民總醫院健康管理中心

## Background

Nutritional status may affect clinical outcomes in various cardiovascular diseases including heart failure, acute myocardial infarction, and patients undergoing cardiac surgery. Different nutritional assessment tools have been developed trying to provide a more accurate screening for malnutrition. The prognosis significance of preoperative Controlling Nutritional Status (CONUT) score has been widely investigated in cancer patients, but has limited information for CAD patients, especially the clinical outcomes in CAD patients undergoing percutaneous coronary intervention (PCI).

## Methods

We retrospectively reviewed 3118 patients with coronary artery diseases undergoing percutaneous coronary intervention between July 2006 to December 2015 in this registry. The patients included those with stable coronary artery disease and acute coronary syndrome. Data of on-admission biochemistry profiles and coronary angiographic characteristics were collected. We evaluated the nutritional status of the patients with CONUT score. CONUT takes into account serum albumin(g/dL), total cholesterol level(mg/dl) and total lymphocyte count(/ml), with a score ranging 0-12, higher scores reflect worse nutritional status. The patients were classified as normal, mildly, moderately, or severely malnourished based on the CONUT score. The incidence of acute myocardial infarction, ischemic stroke, revascularization, gastrointestinal bleeding, congestive heart failure and major adverse cardiac events (MACE) including all-cause mortality and non-fatal myocardial infarction, were evaluated.

## Results

The mean age of our patients was  $71.5 \pm 12.1$  years, of which 81.5 % were male. The median CONUT score was 2.6. During the median follow up of 9 years, distribution of patient with mildly, moderately and severely malnourished were 1366 (43.8%), 505 (16.2%) and 66 (2.1%) respectively. The Kaplan-Meier analysis revealed patients with high CONUT score was significantly associated with higher rates of the major event including MACE (log-rank  $P < 0.001$ ), acute myocardial

infarction ( $p < 0.001$ ), cardiovascular death ( $P < 0.001$ ), congestive heart failure ( $P < 0.001$ ) and total CV events (log-rank  $P < 0.001$ ). After adjusting for comorbidities and medication, increasing CONUT score was independently associated with higher risk of developing AMI (HR:1.13; 95% CI 1.03-1.24,  $P = 0.008$ ); CV death (HR: 1.18, 95% CI:1.07-1.30,  $P = 0.001$ ); CHF (HR: 1.11, 95% CI: 1.04-1.18,  $P = 0.002$ ); MACE: (HR: 1.14, 95% CI: 1.07-1.22,  $P < 0.001$ ) and total CV events (HR: 1.11, 95% CI: 1.07-1.15,  $P < 0.001$ ).

### **Conclusion**

CONUT score is considered a useful marker for long-term outcome prediction and risk stratification in patients with CAD undergoing PCI.

**Key words:** Coronary artery disease, percutaneous coronary intervention, nutrition, risk stratification, Controlling Nutritional Status (CONUT) score.