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Creating a new and simply frailty score for predicting postoperative morbidity in cardiac surgery

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Introduction: Ageing and elderly people have greater risk. Physical state and frailty status represent an important risk and must be considered before cardiac surgery. More than one third of current surgeries are performed in patients older than 70 years; this is a factor to keep in mind in our routine evaluation. Currently, an accepted definition for frailty is not well established. It has been considered as a physiological decline in multiple organ systems, decreasing the patient's capacity to withstand the stresses of surgery and disease. The aim of our study was to determinate a correlation between preoperative features and the morbidity after cardiac surgery in aortic valve replacement population.

Methods: We selected 70 years old patients or older who underwent an elective aortic valve replacement. We collected, prospectively, all preoperative features and frailty traits (Barthel Test; Gait Speed test, Handgrip) also taking into account blood parameters like albumin level and hematocrit previous to the surgery, and hospital admissions within 6 months; and we analyzed the demographics and medical history of the patients. We compared patients who underwent stented prosthesis, sutureless or TAVI procedure.

Results: Two hundred patients were enrolled. The mean age was 78 years. The predicted mortality with Logistic euroScore I was 12.8% with a real mortality lower than expected (3.5%). Pre-surgery frailty in our population was associated with a Gait Speed higher of 7 seconds, Barthel less of 90%, anemia with Hematocrit <32%, albumin level <3,4 g/dl, chronic renal failure, preoperative re-admission and artery disease. The TAVI group had higher morbidity; no differences statistically significant between stented and sutureless prosthesis group were observed. Frail individuals had longer hospital stays, readmissions and respiratory/infectious complications. The mortality at 6 months /one year follow up was 4.1%/0% respectively; and morbidity (pacemaker implant, respiratory events, readmission); at 6 months /one year of follow up was 13.47 % to 3%.

Conclusions: Elderly and frailty population present more complications after a cardiac surgery. A simple frailty score must be considered in cardiac population to avoid increased morbidity.

Image :

| | Stented n=100 | Sutureless n=100 | P |
|---------------------------|------------------|---------------------|------|
| Age | 77.88 (SD 6.82) | 78.87 (SD 6.95) | .277 |
| Male | 55.00 (55.0%) | 55.00 (55.0%) | .999 |
| BMI | 26.00 (SD 4.00) | 26.00 (SD 4.00) | .999 |
| HTA | 55.00 (55.0%) | 55.00 (55.0%) | .999 |
| DM | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| COPD | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| IRC | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| Artery disease | 55.00 (55.0%) | 55.00 (55.0%) | .999 |
| Preoperative re-admission | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| Readmission at 6 months | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| Morbidity | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| Mortality at 6 months | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| Mortality at 1 year | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| Handgrip | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| Barthel | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| Gait Speed | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| Albumin | 10.00 (10.0%) | 10.00 (10.0%) | .999 |
| Hematocrit | 10.00 (10.0%) | 10.00 (10.0%) | .999 |

(BMI: Body Mass Index, HTA: Hypertension, DM: Diabetes Mellitus, COPD: Pulmonary Obstructive Disease, IRC: Chronic Renal Failure, DLP: Dyslipidemia, IADL: Independence Activities Daily Living)

Biography

Elisabet Berastegui completed her studies in Medicine in Barcelona University-Hospital Clinic. She completed her Training in Cardiac Surgery in Hospital Vall Hebron where she got her Certificate of Research Aptitude: Fallot Tetralogy; right ventricular remodeling after pulmonary valve replacement in 2010. She works as staff in Hospital Germans Trias i Pujol where she is working in areas of frailty and risk. She is enrolled in different studies (PERSIST TRIAL) and is Coordinator of Spanish PLIAR REGISTER for sutureless prosthesis

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