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Physiotherapy and Nursing Intervention in Transcatheter Tricuspid Valve Replacement

LETTER TO THE EDITOR

To the Editor,

We have recently read with great interest the article by Buğan et al[1] entitled "Transcatheter Tricuspid Valve Replacement for Tricuspid Regurgitation: A Systematic Review and Meta-analysis." It reported 9 studies with 321 patients and showed excellent results in transcatheter tricuspid valve replacement (TTVR). We would like to share the experience of these patients in perioperative physiotherapy and nursing intervention.

Table 1. The Clinical Characteristics of the Patients

Patient Characteristics	Mean or N	SD or %
Age, years	68.2	7.821
Female	21	84
BMI	24.470	3.6407
Smoking history		
Nonsmoker	4	16
ExSmoker	21	84
Smoker	0	0
Comorbidity		
COPD	13	52
Atrial fibrillation	20	80
Type 2 diabetes	7	28
Hypertension	6	24
Coronary arterial disease	1	4
LVEF, %	61.56	4.144
Pulmonary arterial pressure, mmHg	38.00	6.621
EuroSCORE	8.080	1.152
RVFAC, %	35.832	7.839
TAPSE, mm	14.708	3.972
KCCQ-OS	53.553	20.800
6-MWD, m	291.640	108.800
FEV1, L	1.521	0.411
FVC, L	2.021	0.555
NYHA classification		
III	23	92
IV	2	8
TR severity		
Severe	10	40
Massive	11	44
Torrential	4	16

BMI, body mass index; LVEF, left ventricular ejection fraction; RVFAC, right ventricular fractional area change; 6MWD, 6-minute walking distance; KCCQ, Kansas City Cardiomyopathy Questionnaire Overall Summary Score; NYHA, New York Heart Association; TAPSE, Tricuspid annular plane systolic excursion.

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Table 2. The Dead Patients Are Not Included in ICU Stay

	Mean or N	SD or %
Complications		
Device migration	1	4
Hemorrhage	1	4
Permanent pacemaker implantation	1	4
CRRT	1	4
Lung infection	4	16
In hospital/30-day mortality	2	8
ICU stay, days	2.044	1.331
LVEF, %	58.720	18.449
RVFAC, %	32.800	9.332
30-day 6MWD mean difference, m	33.826	92.997
KCCQ-OS	60.000	21.627
NYHA		
I	8	34.8
II	12	52.2
III	1	4.3
IV	2	8.7

CRRT, continuous renal replacement therapy; LVEF, left ventricular ejection fraction; RVFAC, right ventricular fractional area change; 6MWD, 6-minute walking distance; KCCQ-OS, Kansas City Cardiomyopathy Questionnaire Overall Summary Score; NYHA, New York Heart Association; ICU, intensive care unit.

Twenty-five patients (21 females; 68.2 years) with severe tricuspid regurgitation (TR) were enrolled in this study between September 2019 and November 2020 in West China Hospital of Sichuan University. These patients were at high risk for surgical intervention after being carefully assessed by the multidisciplinary heart team. After summarizing the postoperative recovery experience of some TTVR patients, these patients were admitted for nursing intervention during perioperative period of TTVR, which includes preoperative education on thoracic expansion exercises, effective cough, an inspiratory muscle training protocol at 50% of maximal inspiratory pressure (MIP) for at least 3 days, preoperative and postoperative nutrition support. All the patients received LuX-Valve implantation.

The baseline clinical characteristics of the 25 patients are listed in Table 1, and the outcome is shown in Table 2. Technical success was 100%, with implantation of a single valve in the appropriate position. None of the patients had TR, 1 patient died 24 days after operation, and 1 patient lost follow-up after discharge. As we can see, after physiotherapy and nursing intervention, the length of intensive care unit stay was shortened, and the incidence of pulmonary complications was reduced. The 6-minute walking distance of the patients was higher than that mentioned in the previous article and close to the patient's preoperative condition. The Kansas City Cardiomyopathy Questionnaire Overall Summary Score score has also reached a good level. These results suggest that perioperative physiotherapy and nursing intervention are also essential in TTVR.

Severe TR is relatively common, especially in the elderly, and portends poor person. Transcatheter tricuspid valve replacement is an effective treatment for such patients. But in addition to the operation, we should pay attention to the physiotherapy and nursing intervention of patients during the perioperative period, so that patients can recover better.

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REFERENCE

1. Buğan B, Çekirdekçi Eİ, Onar LÇ, Barçın C. Transcatheter tricuspid valve replacement for tricuspid regurgitation: a systematic review and meta-analysis. *Anatol J Cardiol*. 2022;26(7):505-519. [CrossRef]