

Guidance document for PM JAY package

Tricuspid Valve

Procedures covered/ Procedure Count: 2

Specialty: CTVS

Package name	Procedure name	HBP 1.0 code	HBP 2.0 code	Package price	ALOS
Single Valve Procedure	Tricuspid Valve	S1300012, S1300019, S1300020	SV005C	119,000 + Cost of implant	7 days
Immediate reoperation	Tricuspid valve	New Package	SV0031D	59,500 + Cost of implant	7 days

Minimum qualification of the treating doctor:

Essential: M.Ch./DNB/equivalent (Cardiothoracic Surgery)

Special empanelment criteria/linkage to empanelment module: Cardiothoracic Surgery OT

Disclaimer:

For monitoring and administering the claim management process of **Tricuspid Valve**, NHA shall be following these guidelines. This document has been prepared for guidance of PROCESSING TEAM and TRANSACTION MANAGEMENT SYSTEM of AB PM-JAY for the claims of procedures mentioned above. The hospitals can also refer to this document so that they have the insight on how the claims will be processed. However, this document doesn't provide any guidance on clinical and therapeutic management of patient. In that respect the hospitals and physicians may refer to any other relevant material as per the extant professional norms.

PART I: GUIDELINES FOR CLINICIANS AND HEALTHCARE PROVIDERS

1.1 Objective:

The purpose of this section is to act as a guidance & a clinical decision support tool for the clinicians in deciding the line of treatment, plan clinical management of patient and decide referral of cases to the appropriate level of care (as required) for treatment of patients under PMJAY and selection of corresponding Health Benefit Package.

It will also serve as a tool for hospitals to determine and submit the mandatory documents required for claiming reimbursement of health benefit package under PMJAY.

1.2 Clinical key pointers:

Tricuspid Stenosis

Rheumatic heart disease is one of the most common causes of TS and almost always occurs in conjunction with mitral stenosis. Large vegetations in infective endocarditis can cause relative stenosis. Carcinoid syndrome may cause isolated TS or mixed with the regurgitant lesion. Systemic diseases like systemic lupus erythematosus (SLE), antiphospholipid antibody (APLA) syndrome and the presence of permanent pacing and fusion of implantable cardioverter defibrillator leads to sub-valvular structures can cause tricuspid stenosis. Benign tumors like atrial myxomas can cause functional TS.

Clinical Features

Presenting symptoms are generally related to right-sided valve disease such as reduced exertional capacity, fatigue, or, exertional syncope. Patients with severe TS will eventually have hepatic congestion, leg edema, ascites, and deterioration of liver function tests and anasarca.

"Giant a waves" classically greater in height than usually perceived in the jugular venous pulse, are seen in TS. A "slow y descent" due to delayed emptying of the right atrium into the right ventricle can also be seen. The lungs are clear in patients with isolated TS. A low frequency presystolic mid-diastolic murmur is heard at the lower left sternal border in the fourth intercostal space.

Treatment

A decision should be made to treat the patient with a valvotomy or valve surgery.

Valvotomy: Valvotomy is performed using 1, 2, or 3 balloons. While some stenosis may persist, the change in valve area causes a significant reduction in the transvalvular pressure gradient and a decrease in right atrial pressure.

Valve surgery: Tricuspid valve surgery includes repair vs. replacement. Repair should be attempted when reasonable. When repair is not an option, valve replacement can be done by open versus transcatheter replacement. While replacing the valve, no differences in outcomes have been established between bioprosthetic vs. mechanical valves.

Tricuspid Regurgitation

The lesions in tricuspid regurgitation may be categorized as primary where the intrinsic abnormalities in the tricuspid valvular apparatus are responsible or secondary where the right ventricular dilatation causes tricuspid regurgitation. Secondary disorders like tricuspid annular dilation and/or leaflet tethering in the setting of right ventricular pressure and/or volume overload are largely responsible for tricuspid regurgitation as compared to primary disorders involving the valve apparatus.

Clinical Features

Patients present with clinical features of right-sided heart failure. These may be painful hepatosplenomegaly, ascites, and peripheral edema. In severe cases, pulsations in the neck from the distended and pulsatile jugular veins is noted. Exercise intolerance may be seen.

Clinical features of the underlying condition causing tricuspid regurgitation may be observed. For example, pulmonary hypertension may cause symptoms such as weakness, shortness of breath, and exercise intolerance or patients presenting with infective endocarditis, a common cause of tricuspid regurgitation, may present with febrile episodes.

Physical Examination

- Jugular venous distension with a prominent V wave reflects the elevation in right atrial pressure. Increase in venous return causes jugular venous distension, and it is more prominent with inspiration (Kussmaul's sign).
- S3 gallop is associated with an extremely dilated RV.
- Pansystolic murmur: It is high pitched and loudest in the fourth intercostal space in the parasternal region. The intensity of the murmur increases during inspiration, exercise, leg raising (due to increase in venous return) and decreases in standing position and during Valsalva maneuver.
- Ascites
- Cachexia and jaundice
- Atrial fibrillation
- Peripheral edema
- Right ventricular heave due to dilated right ventricle and S4 gallop that increases with inspiration

Treatment

Indications for tricuspid valve surgery depend upon whether surgery for left-sided (aortic or mitral) valve disease is indicated

For patients undergoing left-sided valve surgery:

1. Tricuspid valve surgery is recommended in these patients with severe TR, as observed in the 2014 American Heart Association/American College of Cardiology (AHA/ACC) and the 2012 European Society of Cardiology (ESC) valvular disease guidelines
2. Patients undergoing left-sided valve surgery and who have mild, moderate or severe TR, concomitant tricuspid valve repair is recommended in the following cases:
 - Dilation of the tricuspid annulus (transthoracic echocardiogram indicating a diameter of greater than 40 mm or 21 mm/m² indexed for body surface area or intraoperative diameter greater than 70 mm)
 - Previous history of right heart failure. This is a recommendation in the AHA/ACC valve guidelines and similar recommendations are indicated in the 2012 ESC guidelines

Isolated Tricuspid Surgery

The appropriate timing of isolated tricuspid valve surgery is not well established.

In patients who are refractory to medical treatment but have severe tricuspid regurgitation, tricuspid valve surgery is suggested (weak recommendation). It is

preferred to perform it before the onset of significant right ventricular dysfunction to control or prevent symptoms, as recommended in the 2014 AHA/ACC valvular guidelines.

In symptomatic and severe isolated tricuspid regurgitation without right ventricular dysfunction, tricuspid valve surgery is strongly recommended as per the 2012 ESC valvular guidelines.

In asymptomatic or minimally symptomatic patients with severe TR, the role of tricuspid valve surgery is ambiguous. The 2014 AHA/ACC valvular guidelines note this uncertainty and include a very weak recommendation that tricuspid valve surgery may be considered for asymptomatic or minimally symptomatic patients with severe primary tricuspid regurgitation and progressive moderate or greater RV dilation and/or systolic dysfunction.

1.3 Mandatory documents- For healthcare providers

Following documents should be uploaded by the concerned hospital staff at the time of pre-authorization and claims submission

Mandatory document	Tricuspid valve	Immediate Reoperation- Tricuspid Valve
i. At the time of Pre-authorization		
a. Clinical notes	Yes	Yes
b. Clinical notes indicating need for reoperation	No	Yes
c. Echo/Doppler report	Yes	Yes
ii. At the time of claim submission		
a. Procedure / Operative notes	Yes	Yes
b. Post procedure stills of ECHO with report	Yes	Yes
c. Detailed Discharge Summary	Yes	Yes
d. Barcode of implant, if used	Yes	Yes

PART II: GUIDELINES FOR PROCESSING TEAM

PART III: GUIDELINES FOR TRANSACTION MANAGEMENT SYSTEM (TMS)

3.1 Objective: To enable setting up of cross check mechanisms/rule engines within the IT platform (TMS) to ensure compliance with STGs and to prevent fraud / abuse of the Health Benefit Package.

3.2 Below mentioned are the scenarios where a provision would be built in TMS for pop-ups:

1. Was the Echo/ Doppler report suggestive of Tricuspid Stenosis/ Tricuspid Regurgitation?
Yes

Till the time the functionality is being developed, the processing doctors shall check the above manually.

References

1. Golamari R, Bhattacharya PT. Tricuspid Stenosis. [Updated 2020 Feb 4]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-
2. Roberts WC, Ko JM. Some observations on mitral and aortic valve disease. Proc (Bayl Univ Med Cent). 2008 Jul;21(3):282-99.
3. Cardiology Working Groups of Cardiovascular Surgery and Valvular Heart Disease. Eur J Cardiothorac Surg. 2017 Dec 01;52(6):1022-1030.
4. Pellikka PA, Tajik AJ, Khandheria BK, Seward JB, Callahan JA, Pitot HC, Kvols LK. Carcinoid heart disease. Clinical and echocardiographic spectrum in 74 patients. Circulation. 1993 Apr;87(4):1188-96.
5. Gur AK, Odabasi D, Kunt AG, Kunt AS. Isolated tricuspid valve repair for Libman-Sacks endocarditis. Echocardiography. 2014 Jul;31(6):E166-8.
6. Al-Hijji M, Yoon Park J, El Sabbagh A, Amin M, Maleszewski JJ, Borgeson DD. The Forgotten Valve: Isolated Severe Tricuspid Valve Stenosis. Circulation. 2015 Aug 18;132(7):e123-5.
7. Stapleton JF. Natural history of chronic valvular disease. Cardiovasc Clin. 1986;16(2):105-47
8. Applefeld MM. The Jugular Venous Pressure and Pulse Contour. In: Walker HK, Hall WD, Hurst JW, editors. Clinical Methods: The History, Physical, and Laboratory Examinations. 3rd ed. Butterworths; Boston: 1990.
9. Morgan JR, Forker AD, Coates JR, Myers WS. Isolated tricuspid stenosis. Circulation. 1971 Oct;44(4):729-32
10. Baumgartner H, Hung J, Bermejo J, Chambers JB, Evangelista A, Griffin BP, Iung B, Otto CM, Pellikka PA, Quiñones M., American Society of Echocardiography. European Association of Echocardiography. Echocardiographic assessment of valve stenosis: EAE/ASE recommendations for clinical practice. J Am Soc Echocardiogr. 2009 Jan;22(1):1-23; quiz 101