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INITIAL EXPERIENCE WITH LITHOTRIPSY FOR MITRAL BALLOON VALVULOPLASTY

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Interventional and Structural

INITIAL EXPERIENCE WITH LITHOTRIPSY FOR MITRAL BALLOON VALVULOPLASTY

Moderated Poster Contributions
Interventional and Structural Moderated Poster Theater 1_Hall C
Saturday, April 2, 2022, 10:00 a.m.-10:10 a.m.

Session Title: Structural Heart: Investigation on the Knife's Edge
Abstract Category: 18. Interventional and Structural: Non-aortic valve structural heart disease
Presentation Number: 1000-05

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Background: Mitral annular calcification (MAC) causes degeneration of the mitral valve function. Since these patients are poor surgical candidates, options are limited to percutaneous solutions. Use of balloon lithotripsy (BL) to augment mitral balloon valvuloplasty (MBV) is a novel technique for treatment of MAC-related mitral stenosis (MS).

Methods: Single-center retrospective review of 35 consecutive MBV for MAC cases at Henry Ford from 3/2013 to 4/2021. Outcome variables are reported as median and interquartile ranges (IQR). Chi-squared and Wilcoxon-signed rank tests were used to compare categorical and continuous variables respectively using 95% confidence intervals for statistical significance. Procedural success was defined as a final mitral valve area ≥ 1.5 cm² or $\geq 50\%$ reduction in gradient.

Results: Of 35 MBV cases done for MAC, 5 utilized lithotripsy balloons to augment valvuloplasty results (Table). Mean baseline gradients were similar and right ventricular systolic pressures trended higher for BL cases. Cases utilizing lithotripsy were longer and utilized more fluoroscopy time but the final invasive gradient trended lower (non-BL 7mmHg [4, 9] vs. BL 1 mmHg [0,5] p=0.113), therefore, higher rates of procedural success were seen (non-BL 47% vs. BL 80%, p=0.2). Survival analysis was hampered due to loss of follow-up in the BL group.

Conclusion: BL appears to augment immediate valvuloplasty results. Further studies regarding the durable impact of balloon lithotripsy on MBV are warranted.

	NON BALLOON LITHOTRIPSY (NON-BL) N=30	BALLOON LITHOTRIPSY (BL) N=5	P-VALUE
AGE	76 [68, 82]	81 [70, 84]	0.300
BMI	30 [24, 36]	24 [23, 35]	0.945
FEMALE GENDER	22 (73%)	3 (60%)	0.6
HYPERTENSION	23 (77%)	5 (100%)	0.6
DYSLIPIDEMIA	12 (40%)	5 (100%)	0.02
DIABETES	17 (57%)	5 (100%)	0.1
CAD	13 (43%)	2 (40%)	1
NYHA FC III/IV	24 (80%)	2 (40%)	0.2
EGFR	52 [25, 74]	62 [26, 77]	1.000
BASELINE ECHO MITRAL MG	10 [8, 15]	8 [8, 12]	0.369
BASELINE ECHO RVSP	45 [28, 63]	73 [53, 81]	0.096
MEAN INVASIVE MITRAL GRADIENT	11 [8, 14]	12 [11, 13]	0.777
BASELINE MEAN INVASIVE MITRAL GRADIENT	11 [8, 14]	12 [11, 13]	0.777
\geq MODERATE-SEVERE MR	4 (13%)	0 (0%)	1.0
SUCCESSFUL MITRAL VALVULOPLASTY	14 (47%)	4 (80%)	0.2
FINAL MITRAL GRADIENT	7 [4, 9]	1 [0, 5]	0.113
LENGTH OF STAY	4 [2, 8]	2 [1, 2]	0.062
POST-PROCEDURAL STROKE	0 (0%)	1 (20%)	1
MAJOR VASCULAR COMPLICATIONS	0 (0%)	2 (40%)	0.20
VARC3 LIFE-THREATENING BLEEDING	2 (7%)	1 (20%)	0.8
ACUTE KIDNEY INJURY	4 (13%)	0 (0%)	1.0
MITRAL REINTERVENTION	6 (20%)	0 (0%)	0.6
MEDIAN FOLLOW UP TIME (YRS)	0.3 [0.1, 1]	0.1 [0.1, 0.6]	0.369