

# The rate dependent bundle branch block and mechanical dyssynchrony leads heart failure and beneficial effect of Cardiac Resynchronization Therapy.

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## Background

Background- CRT ( Cardiac Resynchronization Therapy) has been approved beneficially in heart failure patients with refractory optimised medical therapy on based of many studies. The guidelines have shown CRT is indicated in NYHA class III-IV , QRS >150 ms, LBBB (Left bundle branch block) to improve heart functions, ventricular remodelling and clinical symptoms.

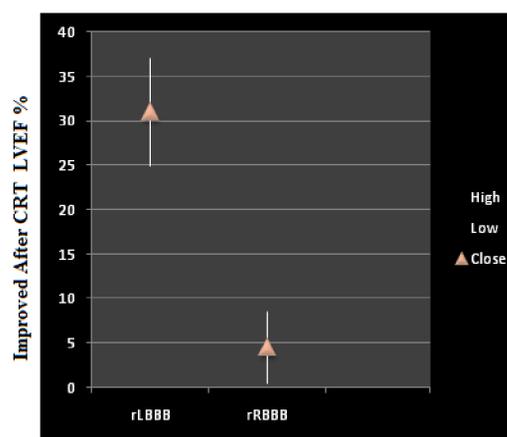
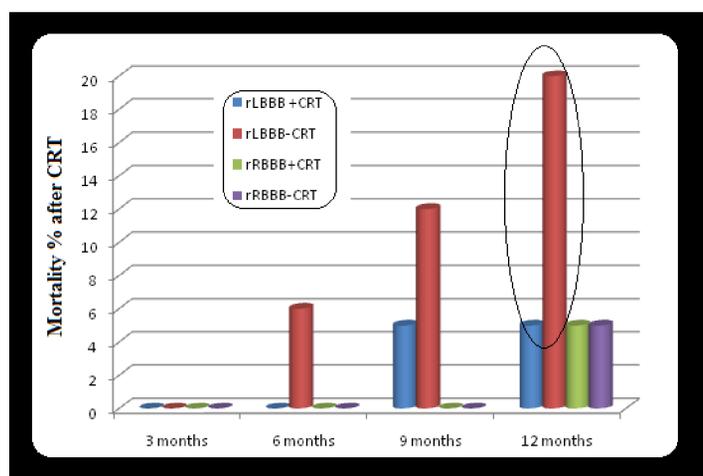
## Purpose and Method

Purpose-comparison of stress induced mechanical dyssynchrony between rate dependent LBBB and RBBB ( Right bundle branch block) and beneficial role of CRT to improve LV function and reduce mortality.

Method-Patients presenting dyspnea on exertion NYHA class I-II to III-IV by stress test , normal QRS to rate dependent LBBB or RBBB by Stress test or Dobutamine Stress Echo were studied. CRT on cardiac function were assessed by Cath study , Echo and MRI ( Magnetic Resonance Imaging).

## Result

Result- 46 Patients, male/female ratio (1.87), 12 months observational study done on stress induced rate dependent LBBB and RBBB with worsening dyssynchrony and poor LV function were treated with CRT. Results have shown improved LV function in rate dependent LBBB patients (31+/-6 %) v/s RBBB patients (4.5+/-4%) with P value <0.04. and reduce mortality among rate dependent LBBB with CRT v/s without CRT ( 5% v/s 20 %) and another side mortality difference between rate dependent RBBB with CRT and without CRT were not found significantly.



Rate dependent bundle branch block and improvement of LV Function after CRT.

## Discussion

Discussion- as per guideline showed CRT is indicated in heart failure patients with NYHA Class III-IV , wide QRS >150 msec, LVEF <35 or LBBB but still we are losing patients in our practice those have normal QRS pattern in resting ECG and widening QRS or rate dependent LBBB may leads heart failure with mechanical dyssynchrony which is revealed by 2D Echo, Cath or MRI . In such patients after CRT , improvement of LV function and clinical symptoms has been reported.

## Conclusion

Conclusion- Stress induced rate dependent LBBB with mechanical dyssynchrony leads to heart failure is benefited by CRT than Rate dependent RBBB.