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ASSESSMENT THE PAPILLARY MUSCLE FUNCTION OF FUNCTIONAL MITRAL REGURGITATION USING SPECKLE TRACKING TECHNOLOGY

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Objectives To evaluate the function of left-side papillary muscles (PM) in ischaemic and non-ischaemic cardiomyopathy patients (ICM, NICM) with functional mitral regurgitation (FMR).

Methods Eighty control subjects were enrolled (group H). Sixty ICM patients with FMR were enrolled according to coronary angiography. Sixty NICM patients with FMR were enrolled as Contemporary definitions and classification of the cardiomyopathies. All patients were divided into three groups as the degree of FMR, mild FMR is group F1, moderate FMR is group F2, severe FMR is group F3. Standard transthoracic echocardiography were performed. All data were exported to Philips Qlab 8.1 workstation for 2D STI analysis. The parameters include: the longitudinal strain of anterior PM (APM), posterior PM (PPM) (ALS, PLS), the peak time of APM, PPM (APT, PPT), and the delay time of peak value between APM and PPM (DT).

Results The results illustrate ALS and PLS decreased, the APT, PPT, DT increased with increased of FMR degree ($F > 3.84$, $p < 0.05$). ALS, PLS have negative correlation with FMR and LV mass, have positive correlation with LVEF ($p < 0.05$). DT has positive correlation with FMR and LV mass, has negative correlation with LVEF ($p < 0.05$). No significant difference between ALS and PLS, APT and PPT within group ($p > 0.05$). In addition, compared with control subjects, there was significant alteration of PM acoustics and morphologic features in FMR patients.

Conclusions Our study found the PM longitudinal strain decreased with an increase of FMR degree, both of function and desynchronisation of APM and PPM play important role in FMR occurrence. Specifically, our results part explained the phenomenon that cardiac resynchronisation therapy can reduce the degree of FMR. So these findings may helpful to screen right patients for this therapy.