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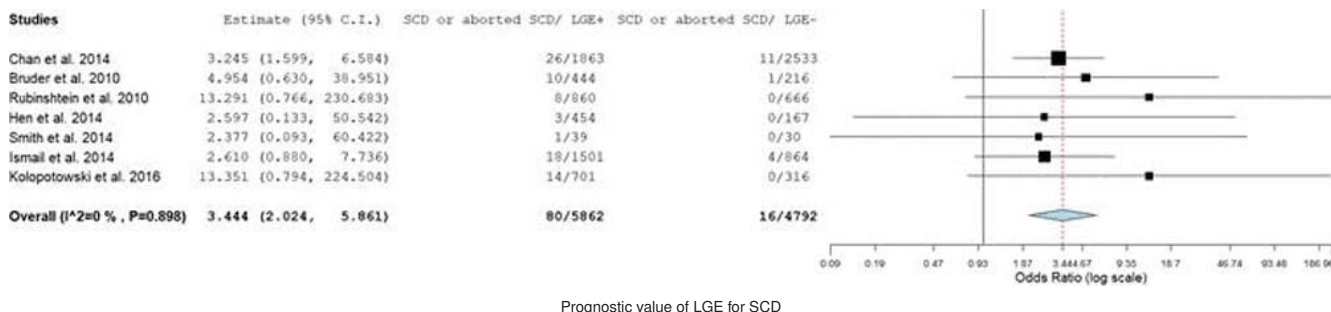
Follow the light - The prognostic value of late gadolinium enhancement in hypertrophic cardiomyopathy

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Background and aim: Hypertrophic cardiomyopathy (HCM) is a genetic based cardiomyopathy with heterogeneous phenotypic expression. Since it is one of the most common cause of sudden cardiac death (SCD) in the young different risk score have been proposed to properly identify the patients that would benefit from a primary prevention with an implantable cardioverter-defibrillator (ICD). ESC guidelines on HCM suggest to estimate the risk of SCD considering clinical and echocardiographic parameters and mention the use of cardiac magnetic resonance (CMR) only in the case of poor echo windows. The aim of the present study-level meta-analysis was to explore the prognostic value of late gadolinium enhancement (LGE) cardiac magnetic resonance (CMR) for adverse fatal events. **Methods:** We searched PubMed and EMBASE for studies that investigated the prognostic value of LGE in patients with HCM. The outcomes of interest were SCD or aborted SCD, all-cause mortality and cardiovascular (CV) mortality. Random-effects Odds Ratios (ORs) were estimated using a DerSimonian-Laird method with a person-year approach. Moreover, an univariate meta-regression was performed to assess the moderator effect of mean age, LGE % of left ventricle (LV) and gender (expressed as male percentage).

Results: A total of 7 studies (n=3351) were included in the analysis. Mean follow-up was 3±0.63 years. Mean age was 47.7±14.6 years and 56.9% were male. LGE was detected in 1845 (55%) patients with a mean LGE percentage of LV of 7%. The presence of LGE was associated with an increased incidence of SCD or aborted SCD (OR 3.44; 95% CI 2.02–5.86; p<0.001- Figure), all-cause mortality (OR 1.92; 95% CI 1.31–2.81; p<0.001) and CV mortality (OR 3.16; 95% CI 1.77–5.64; p<0.001) compared with the absence of LGE at CMR. The LGE percentage of LV, mean age and gender did not have any moderator effect on the outcomes of interest. However, LGE % of LV was reported only in 4 studies and the absence of any moderator effect of this parameter could be due to a type II error. **Conclusions:** The presence of LGE at CMR in patients with HCM exhibited a substantial prognostic value in fatal events and, in particular, in the prediction of SCD. LGE assessment is an effective tool to stratify the arrhythmic risk in HCM. Therefore, it should be considered, especially in borderline cases, to improve the identification of HCM patients who could benefit from ICD implantation.



Prognostic value of LGE for SCD