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View Abstract

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AUTHORS

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Study Group: (none)

ABSTRACT

TITLE: Presence of diabetic retinopathy as a prognostic factor for diabetic kidney disease progression: A systematic review and meta-analysis.

ABSTRACT BODY:

Purpose: This meta-analysis can substantiate the relationship between microvascular changes in retina and severity of diabetic retinopathy (DR) to the risk of progression to end stage renal disease (ESRD) in diabetic kidney disease (DKD) patients.

Methods: Systematic search on PubMed & Embase for articles studying association between DR & chronic kidney disease progression yielded a total of 18,725 articles. Joanna Briggs Institute critical appraisal checklist for cohort studies was used to assess the quality of the selected articles. Higgins & Thompson's I^2 statistic was used to see the degree of heterogeneity. Based on degree of heterogeneity, fixed or random effects model was used to estimate pooled effect using inverse variance method. Results were expressed as hazard ratios and odds ratios with 95% CIs.

Results: After scrutinizing 18017 articles, data from 10 relevant studies (7 prospective and 3 retrospective) were extracted and total of 14,355 patients are included. DR was significantly associated with ESRD with pooled HR of 2.42 (95% CI: 1.70-3.45) [Fig1] and pooled OR of 2.61 (95% CI: 1.76-3.87) [Fig2]. Sensitivity analysis done with biopsy proven DKD and prospective studies yielded similar results with pooled HR 2.76 (1.26-6.04) and OR of 1.79 (1.04-3.09). There was significant association of severity of DR and risk of progression to ESRD with pooled OR for non-proliferative DR: 2.13 (1.82–2.50) and for proliferative DR OR of 3.56 (2.93–4.33).

Conclusions: While association of DR and presence of DKD is already clearly established, this novel meta-analysis substantiates that presence of DR is associated with risk of progression to ESRD. The substantial burden of kidney disease fosters interest in new ways of screening for early disease diagnosis especially via non-invasive imaging. Such an association in clinical workflows can be utilized by an ophthalmologist for early recommendation to patients for possible DKD diagnosis. Since fundoscopy is less invasive and more convenient for the patients than a kidney biopsy, the stage of DR could be useful for prognosticating the clinical course of diabetic nephropathy. Pooled HR of 2.42 & pooled OR of 2.61 with p-value < 0.0001 indicates that

presence of DR is predictive of progression of DKD patients to ESRD.

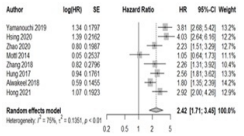

Fig1: Forest plot depicting hazard ratio with 95% CI

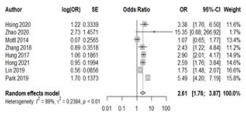

Fig2: Forest plot depicting odds ratio with 95% CI

DETAILS

PRESENTATION TYPE: #1 Poster, #2 Paper

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CURRENT SECTION: Clinical/Epidemiologic Research

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Registration Number (Abstract): (none)

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Date Trial Began (MM/DD/YYYY) (Abstract): (none)

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