INPLASY PROTOCOL

Diagnostic value of Urinary CD80 levels in minimal change disease: A systematic review and meta-analysis

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Review question / Objective: Primary nephrotic syndrome (NS) is one of the most common causes of glomerular disease and is now diagnosed clinically using renal biopsy, of which MCD is one of the common types of NS and is prevalent in children and the elderly. Renal biopsy is not accepted by patients because of its invasive nature.

Condition being studied: A recent study found that urinary CD80 (UCD80) levels was significantly higher in patients with MCD compared to patients with other glomerular diseases, and therefore UCD80 is considered a diagnostic biomarker for MCD. However, individual studies have small sample sizes and inconsistent correlations have been observed. This study performed this diagnostic Meta-analysis to elucidate the diagnostic value of serum urinary CD80 forMCD.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 June 2022 and was last updated on 10 June 2022 (registration number INPLASY202260043).

INTRODUCTION

Review question / Objective: Primary nephrotic syndrome (NS) is one of the most common causes of glomerular disease and is now diagnosed clinically using renal biopsy, of which MCD is one of the common types of NS and is prevalent in children and the elderly. Renal biopsy is not accepted by patients because of its invasive nature.

Rationale: A unique advantage of urine CD80 for diagnosis in minimal change disease.

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significantly higher in patients with MCD compared to patients with other glomerular diseases, and therefore UCD80 is considered a diagnostic biomarker for MCD. However, individual studies have small sample sizes and inconsistent correlations have been observed. This study performed this diagnostic Meta-analysis to elucidate the diagnostic value of serum urinary CD80 forMCD.

METHODS

Search strategy: The search strategies will be conducted by Qin-Yun Li and Cheng-Long, and there will be no language restrictions on our search. The search library include pubmed, embase, cochrane, web of sicence, wanfang database, CNKI, CBM.The search strategy of pubmed will be as follows:((("b7 1 antigen"[Title/Abstract] OR "cd80 antigen"[Title/Abstract] OR "cd80 antigens"[Title/Abstract] OR "b7 1 ligand"[Title/Abstract] OR "b7 1 ligand"[Title/Abstract] OR "ligand b7 1"[Title/Abstract] OR "b7 1 costimulatory molecule"[Title/Abstract] OR "b7 1 costimulatory molecule"[Title/Abstract] OR "costimulatory molecule b7 1"[Title/Abstract] OR "antigen b7 1"[Title/Abstract] OR "antigen b7 1"[Title/Abstract] OR "b cell activation antigen"[Title/Abstract] OR "b cell activation antigen"[Title/Abstract] OR "antigens cd80"[Title/Abstract]) OR (B7-1 Antigen[Title/Abstract])) OR ("B7-1 Antigen"[Mesh])) AND (("Nephrosis, Lipoid"[Mesh]) OR (((((((((((((((((((((Nephrosis, Lipoid[Title/Abstract]) OR (Lipoid Nephroses[Title/Abstract])) OR (Lipoid Nephrosis[Title/Abstract])) OR (Nephroses, Lipoid[Title/Abstract])) OR (Minimal Change Glomerulopathy[Title/Abstract])) OR (Minimal Change Disease[Title/Abstract])) OR (Change Diseases, Minimal[Title/Abstract])) OR (Disease, Minimal Change[Title/Abstract])) OR (Diseases, Minimal Change[Title/Abstract])) OR (Minimal Change Diseases[Title/Abstract])) OR (Nephropathy, Minimal Change[Title/Abstract])) OR (Minimal Change Nephropathies[Title/Abstract])) OR (Minimal Change Nephropathy[Title/Abstract])) OR (Nephropathies, Minimal Change[Title/Abstract])) OR (Glomerulopathy, Minimal Change[Title/Abstract])) OR (Glomerulopathies, Minimal Change[Title/Abstract])) OR (Idiopathic Minimal Change Nephrotic Syndrome[Title/Abstract])) OR (Nephrotic Syndrome, Minimal Change[Title/Abstract])) OR (Minimal Change Nephrotic Syndrome[Title/Abstract])) OR (Glomerulonephritis, Minimal Change[Title/Abstract])) OR (Glomerulonephritides, Minimal Change[Title/Abstract])) OR (Minimal Change Glomerulonephritides[Title/Abstract])) OR (Minimal Change Glomerulonephritis[Title/Abstract]))).

Participant or population: Patients with idiopathic minimal-change disease (MCD) and other glomerular diseases (FSGS, membranoproliferative glomerulonephritis, IgA nephropathy, and membranous nephropathy) of nephrotic syndrome.

Intervention: Urinary CD80 level for diagnosis of idiopathic minimal-change disease (MCD).

Comparator: Diagnosis of MCD and other glomerulonephritis confirmed by renal biopsy.

Study designs to be included: 1) Complete articles have published to investigate the diagnostic value of urinary CD80 in MCD of nephrotic syndrome; 2) Diagnostic study with MCD of nephrotic syndrome as the test group; healthy individuals or non-MCD pathological type as the control group; 4) Evaluation indicators: sensitivity, specificity, area under the curve (AUC) of urinary CD80 in diagnosing MCD under the curve (AUC), etc. (5) The study needs to provide enough information to construct a 2 × 2 column table, i.e. to provide false positives and true positives and negatives.

Eligibility criteria: Exclusion criteria: (1) MCD and urine CD80 were not mentioned in the article. (2) There is no subject operating characteristic curve (ROC curve), sensitivity or specificity in the article. (3) Repeated reports in the literature, poor quality and unusable. (4) Review of

literature, abstracts, lectures, etc., with non-original research and basic studies such as animal experiments.

Information sources: Pubmed、Embase、Cochrane Library、CNKI、Wanfang database and Sinomed.

Main outcome(s): Main outcomes will be diagnostic test urinary CD80 levels in minimal change disease using following statistics: diagnostic odds ratio(DOR),area under summa receiver operating characteristic(SROCcurve (AUCand the summary estimates of the sensitivity, the specificity.

Additional outcome(s): None.

Quality assessment / Risk of bias analysis: The two investigators will independently evaluate each study byscoring seven domains of QUADAS-2 on an evaluation sheet. Any discrepancies will be resolved through discussion.

Strategy of data synthesis: 1.Study heterogeneity will be assessed using the Q and 12 index. The p 50%are considered to be indicative of significant heterogeneity. If the presence of heterogeneity is demonstrated subgroup analysis will be performed according to the common methodological and clinical features of the studies in order to identify the possible sources of the heterogeneity 2.Sensitivity specificity diagnostic odds ratio, positive and negative predictive values will be pooled 3.The symmetrical summary receiver operating characteristic curve will be constructed to summarize the performance.4.We will assess the possibility of publication bias by examining the asymmetry of funnel plots.

Subgroup analysis: We will conduct subgroup analyses according to the common methodological and clinical features of the studies if the presence of heterogeneity is demonstrated.

Sensitivity analysis: The sensibility analysis will be conducted using Stata 12.

Language: English.

Country(ies) involved: China.

Keywords: Urinary CD80, minimal-change disease (MCD),diagnostic performance meta-analysis.

Contributions of each author:
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