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Protocol: A Systematic Review of HLA-B and its Role in Congenital Adrenal Hyperplasia

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ABSTRACT

The link between specific HLA-B genes and congenital adrenal hyperplasia has been a subject of interest. This study investigates the association between these HLA-B genes and congenital adrenal hyperplasia through meta-analysis. The findings may prove helpful for pre- and postnatal diagnosis, identification of carriers, and prediction of prognosis.

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3 Amendments

Amendments will be provided as necessary.

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Introduction

4 Rationale

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The link between specific HLA-B genes and congenital adrenal hyperplasia has been a subject of interest. This study investigates the association between these HLA-B genes and congenital adrenal hyperplasia through meta-analysis. The findings may prove helpful for pre- and postnatal diagnosis, as well as identification of carriers.

5 Objectives

The objective of this research is to determine whether there is a link between HLA-B and the occurrence of congenital adrenal hyperplasia.

Methods

6 Eligibility Criteria

Only studies after 1970 will be included in the data analysis. Only studies written in English will be considered.

7 Information Sources

Google Scholar will be used as a database for the literature review.

8 Search Strategy

These search terms will be used in Google Scholar: "HLA-B and CAH" and "HLA-B and congenital adrenal hyperplasia".

9 Study Records

9.1 Data Management

A shared document will be used to manage sources and data.

9.2 Selection Process

Inclusion criteria: Studies must include case number of CAH with the HLA-B, total cases of CAH, control number with the HLA-B, total control, and be accessible through open access or institutional access. Lack of clear labeling for each of these required elements will be excluded. Odds ratio and associated CI need to be able to be calculated.

Exclusion criteria: Multiple measurements of different populations in a single study will not be included; instead, either one will be chosen or whichever data

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points cover the most cases or controls. Meta-analyses will not be included in analysis. Articles which cannot be accessed in full will be excluded.

9.3 Data Collection Process

Data will be taken from studies independently by two researchers. Compiled data will be placed on a single file.

10 Data Items

The data items collected include the number of cases of congenital adrenal hyperplasia with associated HLA-B genes, the total number of cases of congenital adrenal hyperplasia, the number of healthy controls with the HLA-B gene, and the total number of healthy controls. Odds ratios and confidence intervals were calculated from this data and used for analysis.

11 Outcomes and Prioritization

HLA-B haplotypes with sufficient data, a minimum of three studies, will be included. 10 or less haplotypes will be investigated according to data availability and time.

12 Risk of Bias in Individual Studies

The NIH quality assessment of case-control studies tool may be used for risk of bias assessment. DOI plots and/or an LFK index will be measured with MetaXL as a quantitative measure of bias.

Data Synthesis

13 A: Revman 5.4 and/or MetaXL will be used for statistical analysis.

B: Odds ratios and confidence intervals will be assessed. I^2 will also be used to examine heterogeneity. Heterogeneity which shows an I^2 above 50% will be considered high heterogeneity. p values must be below 0.05 to provide enough evidence of a difference between odds.

C: MetaXL will be used for sensitivity analysis.

Revman citation:
The Cochrane Collaboration. (2020). Review Manager (RevMan) [Computer Program]. Version 5.4.

Barendregt, JJ., Doi SA. (2017). MetaXL User Guide Version 5.3. Retrieved from: http://www.epigear.com/index_files/MetaXL%20User%20Guide.pdf

14 Meta-bias(es)

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The GRADE system will be used to assess the strength of the body of evidence.

Citation for criteria:
Atkins D, Best D, Briss PA, Eccles M, Falck-Ytter Y, Flottorp S, Guyatt GH, Harbour RT, Haugh MC, Henry D, Hill S, Jaeschke R, Leng G, Liberati A, Magrini N, Mason J, Middleton P, Mrukowicz J, O'Connell D, Oxman AD, Phillips B, Schünemann HJ, Edejer T, Varonen H, Vist GE, Williams JW Jr, Zaza S; GRADE Working Group. Grading quality of evidence and strength of recommendations. BMJ. 2004 Jun 19;328(7454):1490. doi: 10.1136/bmj.328.7454.1490. PMID: 15205295; PMCID: PMC428525.

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