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Screening for Cushing syndrome in patients attending obesity diabetes clinics: a systematic review and meta-analysis protocol

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Corresponding author:
AlaaEldin Bashier

alaaeldin.bashier@nextgenediting.com

Author Affiliation:
Dubai Hospital.

ADMINISTRATIVE INFORMATION

Support - Nil.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 September 2025 and was last updated on 19 September 2025.

INTRODUCTION

Review question / Objective The objective of this systematic review and meta-analysis is to synthesize the available evidence on the diagnostic yield of the 1 mg overnight DST for CS in patients attending tertiary obesity and diabetes clinics to quantify the prevalence of serum cortisol suppression and confirmed hypercortisolism.

Rationale Early detection of clinically overt MACS and CS could allow for timely intervention and targeted implementation of cardiovascular risk reduction strategies, but the exact prevalence of MACS and CS in tertiary obesity and diabetic clinic populations remain uncertain.

Condition being studied Cushing syndrome (CS) is an uncommon endocrine disorder (annual incidence 2-3 per million) of endogenous hypercortisolism caused by autonomous adrenal cortisol hypersecretion, adrenal adenoma or carcinoma, or pituitary or ectopic adrenocorticotrophic hormone (ACTH) hypersecretion. Although every clinician is aware of CS, its diagnosis remains challenging, even for endocrinology specialists, and patients often experience years of diagnostic delay.

METHODS

Search strategy The Ovid MEDLINE, PubMed, Scopus, Web of Science, and Cochrane databases searched from inception to date using the search terms: Ovid MEDLINE “Cushing and screening and (obesity or diabetes)).mp”; PubMed "Cushing" AND "screening" AND ("obesity" OR "diabetes"); Scopus "Cushing" AND "screening" AND ("obesity" OR "diabetes"); Web of Science “(Cushing syndrome) AND (screening) AND (obesity OR diabetes) (All Fields)”; and Cochrane Library "Cushing" AND "screening".

Participant or population Adults (≥18 years) with obesity and/or T2DM attending tertiary care obesity or diabetes clinics.

Intervention Screening for Cushing syndrome with the 1 mg overnight DST with a non-suppressive serum cortisol level threshold of ≥ 1.8 µg/dL, with or without subsequent diagnostic follow-up for endogenous hypercortisolism.

Comparator NA.

Study designs to be included Observational studies (cross-sectional, cohort) and randomized controlled trials (RCTs).

Eligibility criteria NA.

Information sources Ovid MEDLINE, PubMed, Scopus, Web of Science, and Cochrane databases.

Main outcome(s) The proportion of screened participants with a "not suppressed" DST [(serum cortisol cut-off of 1.8 µg/dL (50 nmol/L)] and (ii) the proportion with confirmed hypercortisolism after full diagnostic work-up.

Additional outcome(s) NA.

Data management Data tabulation in Excel, reference management in EndNote.

Quality assessment / Risk of bias analysis Joanna Briggs Institute (JBI) checklist for prevalence studies.

Strategy of data synthesis Prevalence calculated as the number of events divided by the number screened. Raw proportions transformed to the logit scale, and pooled prevalence estimates obtained using random-effects meta-analysis. Analyses performed in R.

Subgroup analysis Mixed-effects meta-regression models.

Sensitivity analysis Leave-one-out analyses for each primary outcome.

Language restriction English.

Country(ies) involved UAE.

Other relevant information NA.

Keywords Cushing syndrome; mild autonomous cortisol secretion; dexamethasone suppression test; obesity; type 2 diabetes; screening; meta-analysis.

Dissemination plans Publication in a peer-reviewed journal.

Contributions of each author

Author 1 - Alaaeldin Bashier - Conceived the study, drafted the manuscript.
Email: aekhidir@dubaihealth.ae
Author 2 - Sara Bashier - Performed searches, reviewed literature, risk of bias assessment, reviewed manuscript, data analysis.
Email: bashiersara@gmail.com
Author 3 - Fauzia Rashid - Performed searches, reviewed literature, risk of bias assessment, reviewed manuscript, data analysis.
Email: frashid@dubaihealth.ae
Author 4 - Budoor Alemadi - Performed searches, reviewed literature, risk of bias assessment, reviewed manuscript, data analysis.
Email: buaalemadi@dubaihealth.ae
Author 5 - Nada Alhashemi - Performed searches, reviewed literature, risk of bias assessment, reviewed manuscript, data analysis.
Email: nhalhashmi@dubaihealth.ae
Author 6 - Fatheya Alawadi - Performed searches, reviewed literature, risk of bias assessment, reviewed manuscript, data analysis.
Email: ffalawadi@dubaihealth.ae
Author 7 - Elamin Abdelgadir - Conceived the study, drafted the manuscript..
Email: eelaminabdelgader@dubaihealth.ae