

INPLASY PROTOCOL

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Scoping review protocol of the current perspectives in hypospadias research - Review of articles published in 2021

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Review question / Objective: Hundreds of papers are written about hypospadias in children every year referring to all aspects of the pathology, being one of the most common congenital malformations. This pathology represents one of the most debated problems and not only among pediatric surgeons. This paper aims to present this pathology's current perspectives and the most important achievements in hypospadias research during 2021.

Background: Hypospadias is a congenital malformation, in which the meatus is opening on the ventral aspect of the penis, at different possible levels. Usually, the malformation is more complex and may be associated with penile curvature, glans deformation, narrow meatus or megameatus, and anomalies of the skin. Severe cases can present other urogenital or chromosomal anomalies. Many unknown aspects exist of this malformation etiology and development. Hypospadias repair may be a routine operation in distal cases and could be very challenging in proximal cases, even for a trained surgeon. There is no consensus on the treatment options for hypospadias and the development of treatment guidelines remains an unsolved file in medicine.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 November 2022 and was last updated on 23 November 2022 (registration number INPLASY2022110117).

INTRODUCTION

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Rationale: For every pediatric surgeon, urologist, and specialist in this field, it is legitimate to know what is new about hypospadias and it is essential to be up-to-date. Presenting the relevant papers of 2021 and organizing their main ideas and conclusions in a well-structured, transparent tabularized manner would help the readers to understand better and faster which is the current progress in the field.

METHODS

Strategy of data synthesis: We chose the three most popular - PubMed, Scopus, and Web of Science - platforms and searched for the keyword `hypospadias`. We restricted all the publications to 2021. We downloaded all the results in CVS format (or directly as .xls format in the case of the Web of Science platform) and processed them using Microsoft Excel software. We used the articles from PubMed as a base of the research, PubMed being considered the most accessible and most frequently used database. We extracted from every qualified paper the essential ideas and conclusions. Then, we arranged and grouped this information into categories, some of them even into subcategories. The main information of the papers on the

same topic with similar conclusions was merged, reformulated, and included in the corresponding table.

We categorized our conclusions from the included articles relating to hypospadias research into 18 chapters: Surgical techniques (Subgroups: proximal hypospadias re-pair, distal hypospadias repair, covering tissue, curvature, fistula and stenosis, reoperative techniques, others), Postoperative care, Complications, Anesthesia, Anatomical factors, Genetics (reviews, genetical research on a population or on hospitalized patients, genetic counseling, genetic syndromes and malformations, genetical and histological analyses), Environmental factors, Endocrinology, Associated malformations, Questionnaires and recommendations, Management, Biological materials, Animal models, Retrospective of a center, Social media, Bibliometrics, Small gestational age, Neoplasm, and fertility.

Eligibility criteria: We included in our review all the articles which were published in 2021 in the research field of hypospadias with valorous information relating to surgical techniques, postoperative care, complications, anesthesia, anatomical factors, genetics, environmental factors, endocrinology, associated malformations, questionnaires and recommendations, management, biological materials, animal models, retrospective of a center, social media, bibliometrics, small gestational age, neoplasm, or fertility. We excluded the studies which were referring to other pathologies. Books, commentaries, responses to other papers, errata, and withdrawn articles were also eliminated. We accepted the articles which were written in English. Papers in other languages were maintained if they had an English abstract with valorous information.

Source of evidence screening and selection: Source selection (both at title/abstract screening and full-text screening) was performed by the three reviewers independently. Any disagreements were solved by consensus or by the decision of the fourth reviewer. The process was accompanied by a flowchart detailing the

flow from the search, through source selection, duplicates, retrievals, and any additions. We used Microsoft Excel software to identify duplicate records. The rest of the screening was done manually and individually.

Data management: For reference management we used the Mendeley Reference Manager software.

Language restriction: We accepted the articles which were written in English. Papers in other languages were maintained if they had an English abstract with valorous information.

Country(ies) involved: Romania.

Keywords: hypospadias, hypospadias repair, 2021, pediatric surgery, updates.

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