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REVIEW ARTICLE

Methodology of a systematic review☆

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Methodology;
Systematic review;
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Abstract

Context: The objective of evidence-based medicine is to employ the best scientific information available to apply to clinical practice. Understanding and interpreting the scientific evidence involves understanding the available levels of evidence, where systematic reviews and meta-analyses of clinical trials are at the top of the levels-of-evidence pyramid.

Acquisition of evidence: The review process should be well developed and planned to reduce biases and eliminate irrelevant and low-quality studies. The steps for implementing a systematic review include (i) correctly formulating the clinical question to answer (PICO), (ii) developing a protocol (inclusion and exclusion criteria), (iii) performing a detailed and broad literature search and (iv) screening the abstracts of the studies identified in the search and subsequently of the selected complete texts (PRISMA).

Synthesis of the evidence: Once the studies have been selected, we need to (v) extract the necessary data into a form designed in the protocol to summarise the included studies, (vi) assess the biases of each study, identifying the quality of the available evidence, and (vii) develop tables and text that synthesise the evidence.

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Conclusions: A systematic review involves a critical and reproducible summary of the results of the available publications on a particular topic or clinical question. To improve scientific writing, the methodology is shown in a structured manner to implement a systematic review.

PALABRAS CLAVE
Metodología;
Revisión sistemática;
Metaanálisis

Metodología de una revisión sistemática

Resumen

Contexto: La medicina basada en la evidencia tiene como objetivo apoyarse en la mejor información científica disponible para aplicarla a la práctica clínica. Entender e interpretar la evidencia científica implica conocer los niveles de evidencia disponibles, donde las revisiones sistemáticas y/o metaanálisis de ensayos clínicos son la cúspide de la pirámide del nivel de evidencia.

Adquisición de la evidencia: El proceso de revisión debe estar bien desarrollado y planificado de antemano para reducir sesgos y eliminar estudios irrelevantes o de baja calidad. Los pasos a seguir para la realización de una revisión sistemática incluyen: (i) formular correctamente la pregunta clínica a responder (PICO), (ii) desarrollo de un protocolo (criterios de inclusión y exclusión), (iii) realizar una búsqueda bibliográfica detallada y amplia, (iv) cribar los resúmenes de los trabajos identificados en la búsqueda y posteriormente de los textos completos seleccionados (PRISMA).

Síntesis de la evidencia: Una vez seleccionados los estudios se debe: (v) extraer en un formulario diseñado en el protocolo los datos necesarios para resumir los estudios incluidos, (vi) evaluar los sesgos de cada estudio pudiendo identificar la calidad de la evidencia disponible y, por último, (vii) desarrollar las tablas y el texto que sinteticen la evidencia.

Conclusiones: Una revisión sistemática implica un resumen crítico y reproducible de los resultados de las publicaciones disponibles sobre un mismo tema o pregunta clínica concreta. Con el fin de mejorar la escritura científica, se expone de una forma estructurada la metodología para la realización de una revisión sistemática.

Introduction

Thanks to advances in research and access to information, the scientific community, including urology, requires constant updating. In our specialty, optimal continuing education does not only include the techniques or treatments of clinical applicability, or basic research with the possibility of translational research, but also the development of the scientific method to understand, study and share the results of any type of research.

Evidence-based medicine (EBM) was developed by Guyatt, who described it as the conscious, explicit, and judicious use of the best available clinical evidence to make individual clinical decisions.[1] The objective of the EBM is to rely on the best available scientific information in order to apply it to clinical practice. According to the scientific rigor of the studies, a hierarchical classification of the quality of the evidence is established, from which the degrees of recommendation will be established. There are different scales of evidence, being the one of the Oxford Centre for Evidence-Based Medicine (CEBM) the most widespread.[2] Understanding and interpreting scientific evidence involves knowing the levels of available evidence, where systematic reviews (SR) and/or meta-analyses (MA) are the apex of the evidence level pyramid.

An SR implies a critical and reproducible summary of the results of available publications on the same topic/issue. It identifies, evaluates, and synthesizes the best available evidence, as well as defining existing information gaps in order to resolve future unanswered questions. On the contrary, a conventional narrative review summarizes a generally broad topic focused on articles with a great impact without applying the scientific method.[3] SRs are characterized by being explicit (reproducible) and systematic, reducing the probability and magnitude of biases.[4,5] An MA is a quantitative RS, which uses statistical techniques to combine the results of selected studies, and individually answers a question that has been unanswered due to the low relevance of studies in isolation.[6]

Due to the exponential growth of the scientific literature, review articles are currently a key point of information.[7,8] With the aim of contributing to a better knowledge of scientific writing in the field of urology, the methodology for the realization of an SR is summarized in a structured way.

Methodology

SRs should be composed of at least two reviewers who work blindly and in parallel on the acquisition and synthesis of the evidence. The review process must be well developed and