

# 왜 메타분석을 하는가?

신우종

한양대학교 의과대학 마취통증의학교실

## Why Perform Meta-Analysis?

Woo Jong Shin

Department of Anesthesiology and Pain Medicine, Hanyang University College of Medicine, Seoul, Korea

The increase in medical research published recently demands methods to convey information. Even though traditional narrative reviews provide summary information, biases associated with this type of review raised questions about the possibility of widespread application of narrative review as a guide practice.

Iain Chalmers cited an example of crib death or sudden infantile death syndrome (SIDS) in a lecture [1]. The main topic was that we were in a world where the application of any treatment would be evaluated repeatedly. He suggested that we should take a look at the basic of evidence rather than looking at any investigation alone. Gilbert et al. suggested that systematic review and meta-analysis of risk factors for infantile crib death from 1970 would have led to early recognition of the risks of sleeping face down and might have prevented many of infantile deaths during the several decades since the 1950s [2]. For these reasons, clinicians in several areas have been moved away from the traditional narrative review and adopted systematic reviews and meta-analysis.

The main purpose of the narrative review prior to the 1990s was to combine data from various studies. However, this review has some serious limitations of inherent subjectivity coupled with lack of transparency. The second limitation of this review is that reviewers have difficulty in understanding how the effect size varies as a study level covariates if the number of studies increases. A clear and

transparent set of rules is used to search and include studies for systematic review and meta-analysis. Meta-analysis is an important process in most systematic reviews and refers to the statistical synthesis of a data from a series of a study. Statistical procedure will be significant only if the data have been compiled systematically.

The aim of the systematic review and meta-analysis has significant implication for when it should be performed, what kind of model should be used to analyze and interpret the results. Systematic review and meta-analysis can be used to integrate the retrieved data for a certain question to convey information in the field of medicine, pharmacy, social science, criminology, ecology, and business. It may play a crucial role in other parts of the research area such as designing a new research. If researchers find required information by pooling data from several studies, he can make a decision whether a following study is necessary or not. Meta-analysis can be helpful in designing a study if a new study is needed. Systematic review can help to take a position for the new study in context by describing what is known before, and what we anticipated to learn from the new study. A Systematic review can provide not only the knowledge of a new study but the evidence as clarified by a new study with a clear and transparent manner.

Because meta-analysis is not a familiar research field, most clinicians do not have the chance to learn about systematic review

Correspondence to: Woo Jong Shin

우471-701, 경기도 구리시 경춘로 153, 한양대학교 구리병원 마취통증의학과  
Department of Anesthesia and Pain Medicine, Hanyang University Guri Hospital, 153 Kyungchoon-ro, Guri 471-701, Korea  
Tel: +82-31-560-2390, Fax: +82-31-563-1731, E-mail: swj0208@hanyang.ac.kr

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and meta-analysis, topics entitled with “Systematic Review and Meta-Analysis” in this volume of Hanyang Medical Review will provide an outline that allows clinicians to take a look at the logic and basic of meta-analysis, as well as how to interpret the study. This review deals with mainly the basic logic of meta-analysis. Statistical formula and methods used to integrate data from a large study will be discussed partly in this review.

This volume consists of Systematic Reviews and Meta-Analysis [3], Academic strategies based on evidence-practice gaps [4], An Introduction of the systematic review and meta-analysis [5], Searching medical literature effectively [6], Statistical issues in meta-analysis [7], Meta-analysis and quality assessment of randomized controlled trials [8], Understanding effect sizes [9], Measurement of inter-rater reliability in systematic review [10], and finally Meta-analysis of diagnostic test accuracy [11].

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