

Systematic reviews of animal studies - Towards more evidence-based pre-clinical research and translation

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Background

Although still relatively uncommon, the conduct of systematic reviews (SRs) of animal studies has rapidly increased over the last 15 years. SRs of animal studies have shown to be of great value in terms of providing evidence-based input for the design of new animal studies as well as for the design of clinical trials. Additionally, SRs provide insights into the quality and translational value of animal research, which should be, from both the ethical and scientific point of view, one of the leading principles for justification of animal use in biomedical research.

Objectives

As systematic reviews of animal studies are still relatively new, methodological research is needed to develop appropriate methods. Current SRs of animal studies show a high variety in the way they are being conducted.

Method

A quality or risk of bias (RoB) assessment is a vital step in the SR process as this determines the validity and potential translatability of animal data. Published SRs of animal studies were systematically selected and assessed for their methods on RoB assessment.

Results

Only in 52.7% of the published SRs, some type of risk of bias analyses had been mentioned. Of the primary studies included in these SRs, only in 24.6% adequate randomisation and in 14.6% adequate blinding methods had been stated.

Conclusions

These findings illustrate there is a need for better design, reporting and evaluation of primary animal studies, and additional clear guidelines for the proper conduct of systematic reviews of animal studies. This also calls for educational programs such as offered by SYRCLE in cooperation with ZonMW and the Ministry. In this way animal data can be assessed reliably and used to its full value in the chain of evidence-based and translational research, for the benefit of both animals and humans.

Further reading:

Full Thesis by Judith van Luijk:

<http://www.digitaalproefschrift.nl/ebooks/Judith%20Van%20Luijk%20thesis%20eBook/mobile/index.html#p=1>

Free E-learning on systematic reviews of animal studies:

<https://syrcle.ekphost.nl/> (registration code: syrcle).