

METHODOLOGICAL FLAWS OF RESEARCH ARTICLES ON CELL-BASED THERAPIES COMPLICATE PERFORMANCE OF HIGH-QUALITY SYSTEMATIC REVIEW

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Aim

To assess the quality of research papers on cell-based therapies used for the treatment of diabetic foot ulcers.

Background

Systematic review and meta-analysis of research articles in the new emerging fields of science, such as cell-based medicine or clinical molecular diagnostics face particular obstacles.

In course of performing systematic review dedicated to the cell-based therapies used for the treatment of diabetic foot ulcers, the most general flaws of the research papers were detected.

Research design

Comprehensive (“shotgun”) search query was formulated to find all studies relevant to the subject of systematic review (Fig. 1). The database of 5455 abstracts was created. After primary examination relevant studies were selected and submitted to a full-text review (Fig. 2).

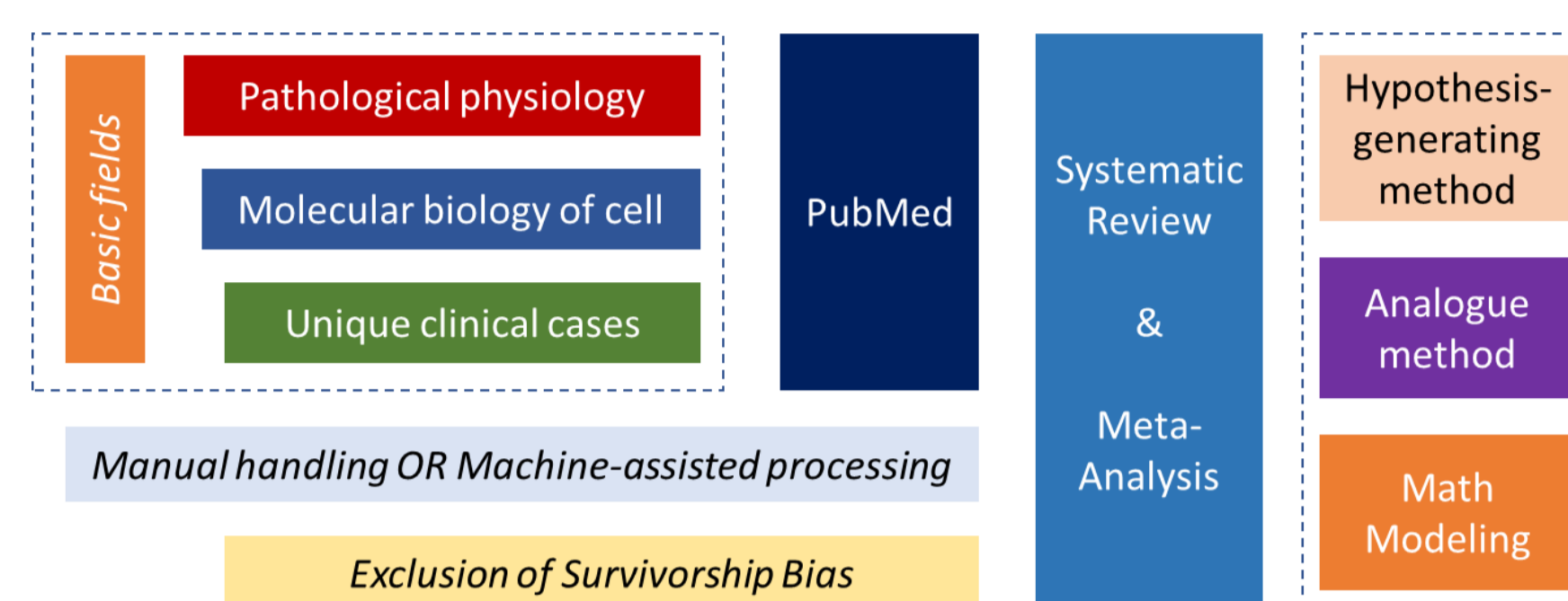


Figure 1. Basic Principles of Panoramic Approach for breakthrough biomedical studies

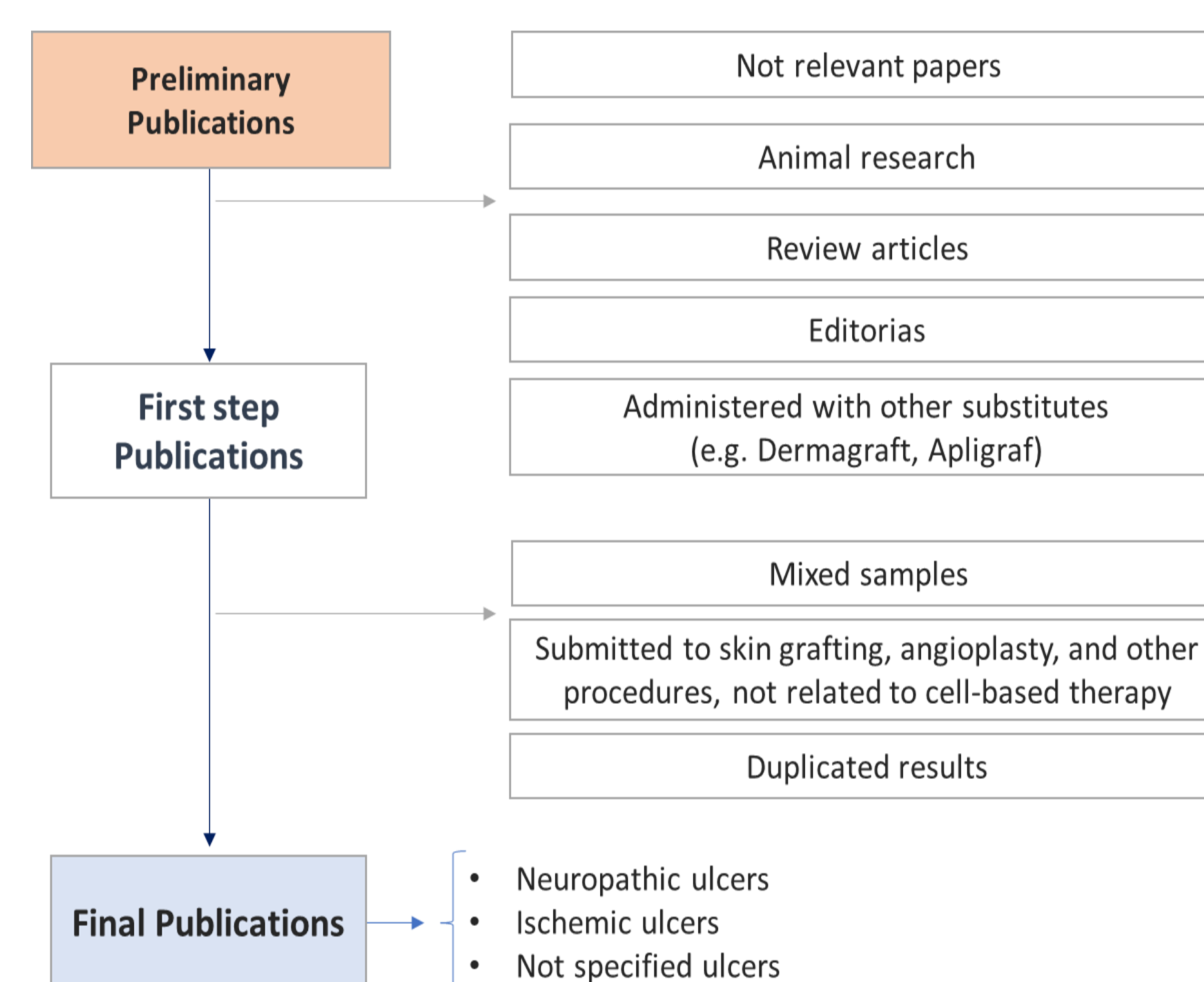


Figure 2. Sample of Systematic Reviews and Meta-Analyses (PRISMA) scheme

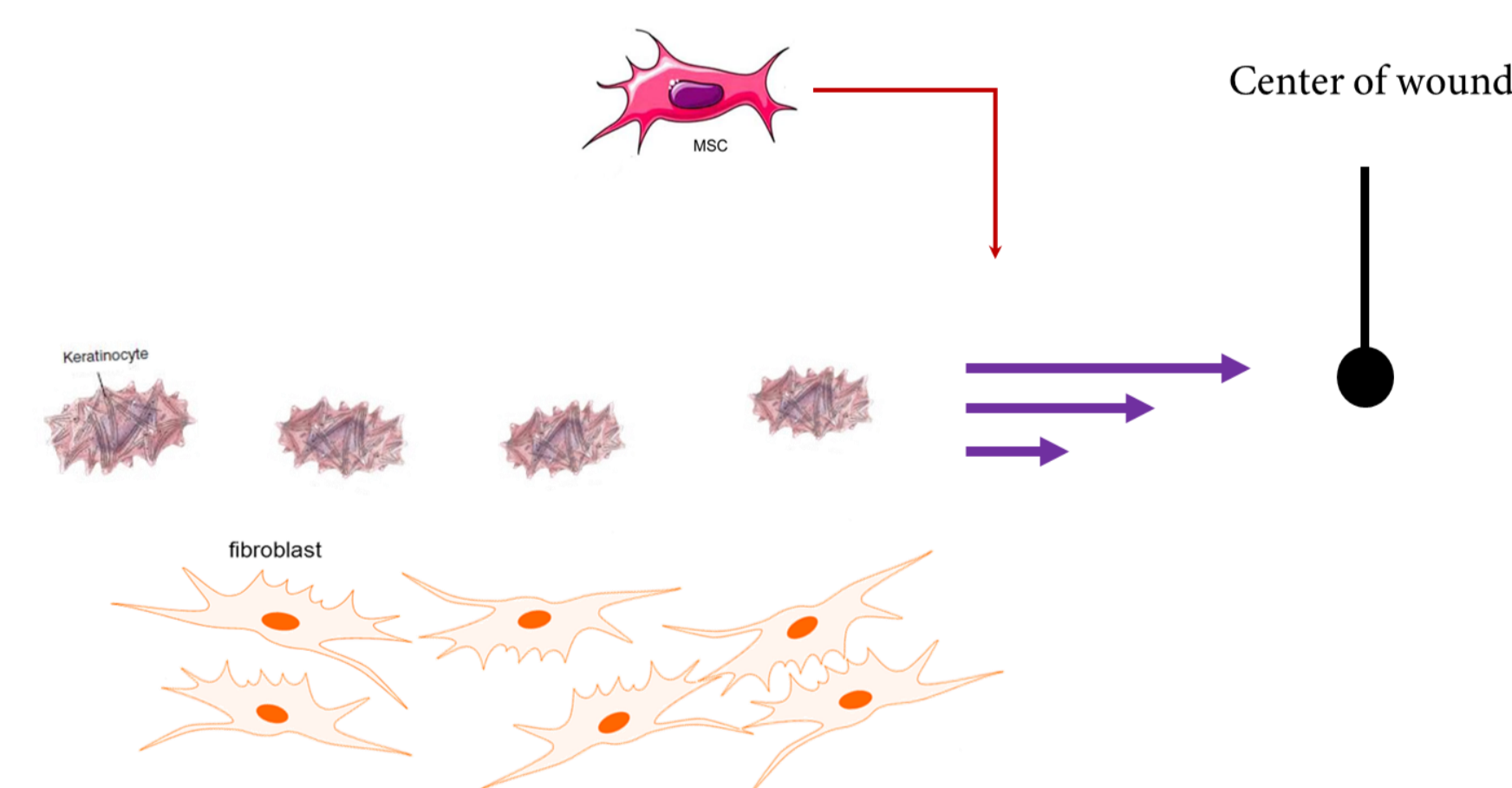


Figure 3. Scheme of cell therapy-based re-epithelization process

Results

Reviewing displayed the most general omissions in articles related to the cell-based therapies (Fig. 3) used for diabetic foot ulcers (DFU) treatment:

- Unspecified nature of treated DFU (neuropathic / ischemic / neuroischemic);
- Lack of measurement data regarding wound area, number of administered cells;
- Results of DFU healing are not separated from other chronic wound healing results.
- Failure to report adverse events, related to the cell transplantation.

Conclusions

Omissions peculiar to the articles on cell-based technologies aggravate data collection/analysis and substantially complicate performance of a high-quality systematic reviews.

References

Maksimova, N., Krashennnikov, M., Zhang, Y., Ponomarev, E., Pomytkin, I., Melnichenko, G., Lyundup, A. (2017). Early passage autologous mesenchymal stromal cells accelerate diabetic wound re-epithelialization: A clinical case study. *Cytotherapy*, 19(12), 1548-1550. doi:10.1016/j.jcyt.2017.08.017