Viewpoint

Acknowledging the Use of Human Cadaveric Tissues in Research Papers:

Recommendations from Anatomical Journal Editors

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Abstract

Research within the anatomical sciences often relies on human cadaveric tissues. Without the good will of these donors who allow us to use their bodies to push forward our anatomical knowledge, most human anatomical research would come to a standstill. However, many research papers omit an acknowledgement to the donor cadavers or, as no current standardized versions exist, use language that is extremely varied. To remedy this problem, 19 editors-in-

chiefs from 16 anatomical journals joined together to put together official recommendations that can be used by authors when acknowledging the donor cadavers used in their studies. The goal of these recommendations is to standardize the writing approach by which donors are acknowledged in anatomical studies that use human cadaveric tissues. Such sections in anatomical papers will not only rightfully thank those who made the donation but might also encourage, motivate, and inspire future individuals to make such gifts for the betterment of the anatomical sciences and patient care.

Keywords: anatomy, dissection, cadavers, research, recommendation, medical ethics

Introduction

Cadaveric tissues are essential for researchers performing human tissue research and for many educators who teach future healthcare providers. However, historically, such specimens were often derived from dubious sources. In modern times, most human cadaveric tissues are derived from donors while still alive. This premortem consent is important for maintaining good ethical

practices in anatomical research. Moreover, this last gift to mankind is important for increasing our knowledge of human morphology and thus, often improves patient care through education and research. Therefore, acknowledging these donors is of utmost importance. Unfortunately, there is currently no standardized writing approach for such acknowledgments (Table 1). Diversity in religion, sense of medical ethics, and view of life and death have all probably contributed to the lack of a standardized Acknowledgment section in studies using cadaveric tissues. To address this, a group of international editors from journals publishing in the anatomical sciences and publishing studies that often utilize cadaveric tissues joined together to develop consensus recommendations for writing acknowledgments to anatomical donors in their publications. Such recommendations add to the respect anatomical studies give to donor cadavers and might also positively influence public attitudes regarding human cadaveric research.

Recommendations

Nineteen editors-in-chief of 16 anatomical journals contributed their expertise to these recommendations.

The recommendations established by the current editor-in-chief authorship include the following:

1. The recommendation is applied to any research using donor cadavers or cadaveric tissues in a study.

2. An Acknowledgment section should follow the Conclusion section of papers.

3. Within the Acknowledgment section, gratitude to the donor cadavers and their families should be expressed.

4. An appropriate and agreed upon donor cadaver Acknowledgment is:

The authors sincerely thank those who donated their bodies to science so that anatomical research could be performed. Results from such research can potentially increase mankind's overall knowledge that can then improve patient care. Therefore, these donors and their families deserve our highest gratitude.

Discussion

Previously, recommendations were established for not only reporting original anatomical studies (Tomaszewski et al., 2017) but also for the uniform reporting of study ethics within anatomical research (Henry et al., 2018). Frequently not been mentioned in publications, however, is thankfulness and appreciation of donor cadavers in anatomical studies has traditionally not been

mentioned in publications. More recently, some authors have recommended adding these to publications where cadaveric tissues are studied.

Henry et al. (2018) in their Anatomical Quality Assurance (AQUA) Checklist, stated, "We strongly recommend that authors acknowledge the contribution of donors in the acknowledgments section of their manuscript to improve the overall ethical standards of published anatomical research." Nevertheless, those authors realized that such an acknowledgement is not a direct issue of ethical compliance. Benninger (2013) reminded us that authors often thank colleagues who review/provide feedback at the close of their scientific papers but there is usually no gratitude offered to the donor cadavers at the conclusion of anatomical publications.

Benninger (2013) evaluated various clinical journals and found that none of these required or even suggested that a donor cadaver acknowledgment be included with anatomical study submissions. Benninger (2013) also suggested that as many universities/private procurement organizations have donor memorial services that authors might mistakenly believe that adequate acknowledgement has already been made. Fortunately, some anatomical journals have begun asking authors to provide an acknowledgment to donor cadavers (Gürses et al., 2016). Although, regrettably, a peer-reviewed framework for such acknowledgments, until now, has not been extant. Additionally, there is a precedent for anatomical editors uniting for a common cause. For example, the Federal International Committee of Scientific Publications (FICSP) of the International Federation of Associations of Anatomists (IFAA)

(http://www.ifaa.net/committees/scientific-publications-ficsp/) works together on issues that commonly affect editors.

Conclusions

The recommendations reported herein provide the anatomical researcher with straightforward and concise approach for explicitly acknowledging donor cadavers in published studies. Additionally, such acknowledgment standards can be used for oral and poster presentations, books and book chapters, and various forms of social media (Rai et al., 2019) where cadaveric tissues are exhibited. Moreover, anatomical journals and journals publishing studies that use cadaveric tissues might recommend a cadaveric donor acknowledgement in their author guidelines. A standardized acknowledgement might increase its use in other peer-reviewed publications.

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Table 1

Descriptions of acknowledging donors shown in the author guidelines from major anatomy

journals (as of July 1, 2020).

Journal	Description
Anatomical Record	None
Anatomical Science International	None
Anatomy	None
Anatomy & Cell Biology	None
Annals of Anatomy	None
Clinical Anatomy	If the submission uses cadaveric tissue, please acknowledge the donors in an acknowledgement at the end of the paper.
Developmental Dynamics	None
European Journal of Anatomy	None
Folia Morphologica	None
International Journal of Anatomical Variations	None
International Journal of Morphology	None
Italian Journal of Anatomy and Embryology	None
Journal of Anatomy	None

Journal of Plastination	None
Journal of the Anatomical Society of India	None
National Journal of Clinical Anatomy	None
Romanian Journal of Morphology and Embryology	None
Surgical and Radiologic Anatomy	None
Translational Research in Anatomy	None