Creeping Authorship: Where Do We Draw the Line?

Most readers of medical journals are aware of articles in which the number of authors appears to be excessive. This "creeping authorship" may be of little concern to some, but to others this apparent gratuitous naming of coauthors is bothersome because it devalues the contributions of those who really did the work, diffuses the accountability of the investigators, and lessens the credibility of the paper. In most instances, it is not that authors wish to be improperly cited; rather, the majority are unaware of reasonable criteria for authorship. It is important therefore for the *American Journal of Neuroradiology* to set forth an understanding of what it means to be an author.

First, we should consider why excessive authorship exists. The explanations range from the most benign reasons, such as trying to help or give recognition to a colleague, to more insidious reasons, such as a junior author's feeling an obligation to name or, worse, being intimidated into naming a senior colleague as coauthor. Whether it is the former "nice guy" situation or the latter arm-twisting coercion (subtle or otherwise), any primary author should resist honorific naming of authors.

The *AJNR's* revised guidelines for authors includes a section on what it means to be an author. For a regular scientific paper, the basic criteria are that each author has *(a)* had a major input into the conceptualization and design of the study, *(b)* analyzed and interpreted the data, *(c)* assisted in the writing of the original paper and all of its subsequent revisions, and *(d)* taken responsibility for the accuracy, content, and originality of the paper. For a report describing a few patients (ie, a case report), the basic concept of close involvement in all phases of data gathering, image interpretation, and manuscript preparation is required. Occasionally, there are gray zones for authorship, such as when a statistician helped design the study and rendered the statistical analysis. In such instances, the *Journal* will rely on the judgment of the primary author. We emphasize that simply thinking of the project or supplying the cases or images or letting the principal author know the existence of one or more similar cases is insufficient justification for authorship.

If the above criteria were applied to all submitted papers, the number of coauthors would drop significantly. Although academic advancement is most strongly linked with publication in peer-reviewed journals, university committees on promotion are well aware of suspect authorship and in increasing numbers they are asking for details of an author's input in each cited paper. Therefore, it is wise for a principal author, at the beginning of an investigation, to set criteria for authorship and the order in which the authors will be cited. Acknowledgments at the end of the paper should be used to recognize those who do not qualify for authorship but who made special intellectual or technical contributions to the paper.

In the upcoming years, the editors of the *AJNR* will seek to discourage gratuitous authorship and may, when the number of authors seems excessive, request the principal author to explain in detail the contribution of each coauthor. Contributors to the *AJNR* are asked to apply proper guidelines for authorship and acknowledgments as they design and write their papers.

ROBERT M. QUENCER
Editor-in-Chief

Proton MR Spectroscopy and the Ring-Enhancing Lesion

A neuroradiologist learns early in training that a cystic-appearing intracranial mass on imaging studies has a broad differential diagnosis and that ring enhancement may be associated with neoplastic, infectious, or vascular lesions. Imaging features such as the location, shape, multiplicity, intensity or density, and pattern of enhancement, as well as clinical clues, are used to narrow the differential; however, the final impression is often ambiguous. The most salient example of this is the difficulty in distinguishing cerebral abscess from primary or metastatic brain tumor; these lesions have very different treatment regimens and prognoses. In this issue of the *AJNR* and in a previous article (2), Chang and colleagues have shown that proton MR spectroscopy provides biochemical information that can narrow the differential diagnosis for cystic masses in general and may permit differentiation of brain abscess from cystic or necrotic tumor in particular.

This application of localized proton spectroscopy is fairly simple and brings the single-voxel technique firmly into the clinical arena. The principal requirements are that the sampling voxel fit within the cystic mass and that spectra be acquired using echo times that demonstrate the phase reversal of J-coupled resonances for metabolites such as lactate and several amino acids. The strength of the spectroscopic method, as demonstrated in this article, is the detection of the end products of protein and carbohydrate metabolism of various bacterial strains known to cause abscesses. The end products acetate (1.9 ppm) and succinate (2.38 ppm), and an

amino acid resonance (0.9–1.0 ppm) representing valine, leucine, or isoleucine, have never been reported in the in vivo proton MR spectra from human brain tumors (2).

The apparent weakness of the technique is the ubiquity of lactate, by virtue of its production during glycolysis, and the lack of correlation between measurable lactate levels and histologic grading of cystic tumors. More specific biochemical profiles are possible, though, with the use of in vivo spectroscopic imaging methods. These permit more efficient sampling of both the cystic/necrotic and solid components of intracranial masses, resulting in additional resonance lines (*N*-acetylaspartate, creatine/phosphocreatine, choline-containing compounds, *myo*-inositol, and others) that aid in characterization and can be displayed as color maps of metabolite distribution. Also, powerful in vitro methods such as two-dimensional shift correlation (COSY) spectroscopy have yet to be applied to the analysis of fluid or tissue samples in the interventional MR setting. The clinical testing and development of these newer approaches are the challenges radiologists must meet if this initial success at lesion characterization is to be extended and accepted as part of the evaluation of intracranial masses, particularly the ring-enhancing lesion.

BRIAN C. BOWEN
Editorial Board

References

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What's Your Favorite PET Story?

A recent confluence of positron emission tomography (PET)-related events is indeed interesting, but unfortunately also confusing. The FDA has been ordered to stand down on its restrictive regulations of PET-related radiopharmiceuticals and HCFA will now consider reimbursement for certain oncologic studies (carcinoma of the lung). These decisions should make clinical PET imaging more practical and economically feasible. On the other hand, the article by Ricci et al in this issue of *AJNR* challenges the clinical value of one of the more highly touted clinical PET studies—fludeoxyglucose (FDG) PET of recurrent brain tumor versus radiation necrosis. Almost 10 years ago, DiChiro et al suggested that FDG PET might be useful for determining the pathologic grade of brain tumors, prognosticating their clinical behavior and differentiating recurrent tumor from radiation necrosis. While intrigued and hopeful, I was skeptical. As the years have passed, I remain so. I must admit, however, that my opinion, reflected in this editorial, is not based so much on scientific evidence as on anecdotal experience with this dreaded disease.

This discussion, and Ricci et al's paper, are focused on the ability of FDG PET to differentiate recurrent glioma, particularly malignant glioma, from iatrogenic radiation necrosis. This particular focus is clinically critical. In my experience, these tumors remain one of the most difficult of all to treat successfully and most prove lethal to the patient within a few years. Furthermore, the cause of death is usually related to recurrent tumor, rarely if ever to radiation necrosis. This position leads to these corollaries: *(a)* there is nearly always recurrent tumor, and *(b)* radiation necrosis is not critical in determining patient outcome. The current problem is not one of diagnosis, but of treatment.

The literature on this problem is conflicting and confusing. Some of the confusion is due to differences in study populations, imaging criteria, and endpoint measurements. Given the pathologic heterogeneity of gliomas, variations in scanning equipment and parameters, and the use of many different endpoint measurements (gross pathologic grade, labeling indices, CT and MR imaging, clinical grade, survival curves, etc), it is not surprising that different conclusions have been reached about the clinical value of FDG PET for this purpose. While all these factors are important, I do not think they are the root of the problem. A common methodological problem is the poorly posed question: tumor or radiation necrosis? The unfortunate answer in most cases is both. This position is most strongly supported by patients' poor outcomes and pathologic reports on gross total resections that typically show great heterogeneity in the specimen with areas of gliosis, low- to high-grade tumor, and necrosis (tumorous and iatrogenic). I fear that we have, in effect, created a "straw man" hypotheses to test with our imaging technique. Our results and conclusions are, therefore, often clinically irrelevant.

R. NICK BRYAN
Senior Editor

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