Retraction: Peroxynitrite Versus Nitric Oxide in Early Diabetes

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Robert Hoeldtke and Daniel McNeill have provided the following statement of retraction. Their coauthors, Kimberly Bryner, Chris Baylis, and Gerald Hobbs, were not involved in the development of the nitrotyrosine measurement but endorse the retraction.

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We reported a few years ago that protein-bound nitrotyrosine was increased in early type 1 diabetes and showed a positive correlation with blood pressure and sudomotor function.1 We measured nitrotyrosine and tyrosine by high-performance liquid chromatography (HPLC) followed by electrochemical detection and expressed our results as the ratio of nitrotyrosine to tyrosine, which we found to be 0.34 ± 0.12 × 10^{-3} in the control subjects and 0.778 ± 0.04 × 10^{-3} in diabetic patients. Unfortunately, at the time we published these data we were unaware of a study by Frost et al.,2 who performed alkaline hydrolysis of the plasma protein followed by mass spectrometry and reported a much lower nitrotyrosine/tyrosine ratio (0.044 × 10^{-3}). A few years later, Shishehbor et al.3 performed acid hydrolysis of serum protein and reported a ratio in nondiabetic patients of 5.2 × 10^{-6}, also much lower (100-fold) than we observed. Because of these discrepancies, we have reassessed our HPLC method and performed a more in-depth analysis of the electrical properties of the peaks we have previously identified as nitrotyrosine using a multichannel CoulArray liquid chromatograph (ESA, Chelmsford, MA). We observed that the electrical properties of the compound we “identified” as nitrotyrosine on the basis of HPLC retention time differed from the authentic compound in many samples and concluded that interfering substances were obscuring the true nitrotyrosine peaks. We have used a second HPLC column and eliminated the interferences from some of our samples, and this decreased the estimated ratio of nitrotyrosine/tyrosine by approximately a factor of 100. On the basis of these considerations, we have concluded that our previously published nitrotyrosine data are invalid. We therefore formally retract this publication. Increased nitrotyrosine has been documented in other laboratories in clinical diabetes using other methods.3,4