CORRESPONDENCE

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Pitfalls in Performing Meta-analysis: II

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To the Editor:—A recent paper by Sorenson and Pace[1] describes meta-analysis of anesthetic techniques during surgical repair of femoral neck fractures and analyzes data from 13 papers in the world literature. I am the first author of three of these.[2-4]

Regrettably, from the point of view of meta-analysis, the three studies are not of three separate study populations but of one population of 148 patients,[2] the long-term outcome of which was described in the 1984 paper.[3] The other two papers examined oxygenation in a subgroup of 100 patients[2] (although outcome at 4 weeks was discussed briefly) and deep vein thrombosis in a subgroup of 40 patients[4] (in which outcome was briefly discussed).

The concept of meta-analysis was unknown to me at the time of writing these studies, and it did not occur to me to mention that these patients were not separate groups. It was not implied in any way that there were three absolutely separate populations. The papers examined different aspects of sequelae of anesthesia for patients with hip fracture. Thus, I presume that the statistics of the meta-analysis will require recalculation.

I feel I must point out that it has been established that there is no significant difference in long-term mortality between regional and general anesthesia in patients with hip fractures: All of the studies that have examined this have been in agreement (see references quoted in the paper by Sorenson and Pace[1]). I therefore question the need for a meta-analysis of mortality at 4 weeks.

Perhaps works conducting a meta-analysis, particularly with older data, should contact any authors with multiple studies to check whether populations were indeed separate.

References

1. Sorenson RM, Pace NL: Anesthetic techniques during surgical repair of femoral neck fractures: A meta-analysis. ANESTHESIOLOGY 77: 1095–1104, 1992
2. McKenzie PJ, Wishart HY, Dewar KM, Gray I, Smith G: Comparison of the effects of spinal anaesthesia and general anaesthesia on postoperative oxygenation and perioperative mortality. Br J Anaesth 52:49–54, 1980
3. McKenzie PJ, Wishart HY, Smith G: Long-term outcome after repair of fractured neck of femur: Comparison of subarachnoid and general anaesthesia. Br J Anaesth 56:581–585, 1984
4. McKenzie PJ, Wishart HY, Gray I, Smith G: Effects of anaesthetic technique on deep vein thrombosis: A comparison of subarachnoid and general anaesthesia. Br J Anaesth 57:853–857, 1985

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In Reply:—Higgins and Stiff are to be commended for their careful reading of the source material for our recent meta-analysis comparing regional and general anesthesia for patients having surgical repair of femoral neck fractures.[1] They correctly identified two errors in our data abstraction—namely, our failure to recognize the partial duplicate reporting of the same patients by Davis *et al.* in 1980 and 1981 and our mistaken tally of patients with diagnostic quality ^{125}I-fibrinogen leg scans for deep venous thrombosis (DVT) in those reports.[2,3]

McKenzie has revealed partial duplicate publication of the same clinical study in three journal reports.[4-6] This produced double counting in our data tallies. This duplicate publication is characterized by the meta-analyst as an instance of multiple publication bias.[7] The 1979 Guide to Contributors for the journal in which the three studies were published stated that: "The purpose of the *British Journal of Anaesthesia* is the publication of original work in all branches of anaesthesia. . . . Papers submitted must not have been published in whole or in part in any other journal. . . ."[8] In our literature search for relevant clinical trials, we interpreted these standards—and similar editorial instructions in other journals—to prohibit unapprised, duplicate publication even within the same journal. If, in fact, duplicate publication of any type were common, it would be essential—as suggested by McKenzie—to confirm the originality of every journal report for inclusion in any type of literature review, either a narrative summary or a meta-analysis.

McKenzie also questioned the necessity for a meta-analysis that