Journal of Nuclear Medicine, published on January 15, 2010 as doi:10.2967/jnumed.109.069401

^{123}I-MIBG Versus ^{18}F-FDG: Which Is Better, or Which Can Be Eliminated?

TO THE EDITOR: The excellent paper by Dr. Sharp and colleagues compared the diagnostic utility of ^{123}I-metaiodobenzylguanidine (MIBG) with ^{18}F-FDG (*1*). They found that ^{18}F-FDG is superior to ^{123}I-MIBG in stage 1 and 2 neuroblastoma and that ^{123}I-MIBG is superior to ^{18}F-FDG in stage 4 neuroblastoma.

The authors comment that for socioeconomic and radiation exposure reasons, a reduction in the total number of imaging procedures may be desirable in neuroblastoma patients. In this setting, what is important is not necessarily which test is superior. Rather, we want to know if one of these imaging tests can be safely eliminated. The answer is no. Not in early-stage neuroblastoma, and not in late-stage neuroblastoma.

The authors found that in 10 of 10 patients with early disease, ^{18}F-FDG was equivalent or superior to ^{123}I-MIBG. But the 95% confidence interval for this ranges from about 72% to 100%. Thus, it remains statistically possible that ^{18}F-FDG may be inferior to ^{123}I-MIBG in up to 3 of 10 patients. We thus conclude that ^{123}I-MIBG scanning cannot be safely eliminated in early neuroblastoma, although ^{18}F-FDG works particularly well.

In stage 4 disease, ^{123}I-MIBG was superior in 24 of 40 patients, whereas ^{18}F-FDG was better in 8 of 40 patients. Yes, 24 of 40 is different from 8 of 40 ($P < 0.001$), but so what? The more pressing question is whether 8 of 40 is significantly different from 0 of 40. That is, can we safely eliminate ^{18}F-FDG scanning in stage 4 patients? No. Their data indicate that up to 3 of 10 late-stage patients will benefit from ^{18}F-FDG scanning, even though ^{123}I-MIBG performs better.

The authors make a valuable contribution by giving us the relative superiority of each agent during the course of neuroblastoma. However, their data also indicate that ^{123}I-MIBG scanning cannot yet be safely eliminated, nor can ^{18}F-FDG scanning be safely eliminated, in the evaluation of early- or late-stage neuroblastoma.

REFERENCE

1. Sharp SE, Shulkin BL, Gelfand MJ, Salisbury S, Furman WL. ^{123}I-MIBG scintigraphy and ^{18}F-FDG PET in neuroblastoma. *J Nucl Med.* 2009;50:1237–1243.

Thomas F. Heston
International American University
Post Box 615
Gable Woods South
Vieux Fort, Saint Lucia
E-mail: tomhestonmd@gmail.com

DOI: 10.2967/jnumed.109.069401