small, reflect the early stages and the pathogenesis of fatal human cases.

Heike Aupperle, MD
Nicolas Doll, MD
Heart Center Leipzig
University of Leipzig
Leipzig, Germany

References

1. Aupperle H, Doll N, Walther T, Kornherr P, Ullmann C, Schoon HA, et al. Ablation of atrial fibrillation and esophageal injury: effects of energy source and ablation technique. *J Thorac Cardiovasc Surg.* 2005;130:1549-54.
2. Aupperle H, Doll N, Walther T, Ullmann C, Schoon HA, Mohr FW. Histological findings induced by different energy sources in atrial ablation in sheep. *Interactive Cardiovasc Thorac Surg.* 2005;4:450-5.
3. Doll N, Borger M, Fabricius A, Stephan S, Gummert J, Hauss J, Kottkamp H, et al. Esophageal perforation during left atrial radiofrequency ablation: is the risk too high? *J Thorac Cardiovasc Surg.* 2003;125:836-42.
4. Santiago T, Melo J, Gouveia RH, Martins AP. Intra-atrial temperatures in radiofrequency endocardial ablation: histologic evaluation of lesions. *Ann Thorac Surg.* 2003;75:1495-1501.
5. Santiago T, Melo J, Gouveia RH, Neves J. Epicardial radiofrequency applications in vitro and in vivo studies on human atrial myocardium. *Eur J Cardiothorac Surg.* 2003;24:481-6.

doi:10.1016/j.jtcvs.2006.03.063

Use of autologous adult stem cell for treatment of congestive heart failure To the Editor:

I read the article by Patel entitled "Surgical treatment for congestive heart failure with autologous adult stem cell transplantation: A prospective randomized study" with great interest.¹⁻⁴ Clearly the authors have demonstrated the effectiveness of injected autologous bone marrow stem cells to improve the functional capacity of the failing heart.³⁻⁵ In this clinical study they had the opportunity to take biopsy specimens of myocardium at the injection sites, but the nature of the cell findings are not reported.

Did the biopsy specimens show the CD34 marker?

Because no information is available in regard to the presence of fibroblasts or scar tissue, would it be possible that these tissues are transforming through dedifferentiation into myocardial tissue instead of stem cell transformation? The implication of this concept will allow investigators to concen-

trate more on the transduction signal pathway rather than stem cells alone.

Syde A. Taheri, MD
University at Buffalo Medical School
Buffalo, NY
E-mail: Staheri268@aol.com

References

1. Patel AN, Geffner L, Vian RF, et al. Surgical treatment for congestive heart failure with autologous adult stem cell transplantation: a prospective randomized study. *J Thorac Cardiovasc Surg.* 2005;130:1631-8.
2. Edelberg JM, Tang L, Hattori K, et al. Young adult bone marrow-derived endothelial precursor cells restored aging-impaired cardiac angiogenic function. *Circ Res.* 2002;90:E89-92.
3. Taheri SA, Hasmat A, Mergige M, et al. Myoangiogenesis after cell patch cardiomyoplasty and omentopexy in a patient with ischemic cardiomyopathy. *Tex Heart J.* 2005;32:1078-83.
4. Menasch P, Hagege AA, Viquin JT, et al. Autologous skeletal myoblast transplantation for severe post infarction left ventricular dysfunction. *J Am Coll Cardiol.* 2003;41:1078-83.
5. Taheri SA, Postoloff AV, Stoesser FA. Leg omentopexy for advanced atherosclerosis and lymphedema. *Bull Millard Fillmore Hospital Buffalo.* 1967;14:14-20.

doi:10.1016/j.jtcvs.2006.02.037

Positron emission tomographic scanning in the diagnosis and staging of non-small cell lung cancer 2 cm in size or less To the Editor:

We read with interest the publication by Port and colleagues.¹ In fact, there is little information in the literature on the role of positron emission tomography (PET) in assessing lung lesions of this size range for malignancy, and well-defined studies are needed. However, the current publication has several shortcomings.

Most importantly, standard uptake value (SUV) should not have been used to assess the lung lesions for malignancy. SUV is a semiquantitative measure of the tracer uptake in the region of interest, which normalizes the lesion activity to the injected dose and body weight; SUV does not have a unit. Despite initial enthusiasm, it is generally accepted that SUV should not be used to differentiate malignant from benign processes and that the visual interpretation of PET studies by an experienced reader provides the highest accuracy in diagnosing malignancy.²⁻⁵ There are many factors influencing the calculation of SUV, such as

the body weight and composition, the time between tracer injection and image acquisition, the spatial resolution of the PET scanner, and the image reconstruction algorithm. The clinical role of SUV in therapy monitoring and as a measure of tumor aggressiveness is currently under investigation.

Furthermore, the intensity of malignant lesions on PET is influenced by the location in the body. During PET acquisition, which takes several minutes, lung lesions move up and down, and their effective acquisition time is reduced. Therefore the fluorodeoxyglucose avidity of small lung lesions is often underestimated. Consequently, it is justified to use a "sensitive reading" and consider tumors of mild intensity to be malignant, although this likely reduces the specificity. Additionally, the non-attenuation-corrected (NAC) images should be reviewed while dealing with small lung lesions. Considering the mildly intense appearance of small malignant lung lesions on PET, it is reasonable to use the NAC images and compare the tumor uptake with the surrounding normal lung tissue and not with the mediastinal blood pool activity, as is the case while reading the attenuation-corrected (AC) images. Although large and markedly intense malignant foci would likely be recognized on both NAC and AC images, this might not be the case for small foci. Also, the pathophysiologic basis of fluorodeoxyglucose PET rests on increased expression of Glut, upregulation of hexokinase activity, and downregulation of glucose-6-phosphatase activity in the cancer cells compared with the normal cells of the same organ, the lung in this case.

In our experience PET can be very helpful in detecting malignancy in lung lesions measuring 6 to 10 mm, provided the images are read with attention to the issues mentioned (NAC images, sensitive reading, and avoidance of SUV thresholds). Sensitivity and specificity of PET for detecting malignancy in small lung lesions (6-10 mm) is currently being evaluated by us in an ongoing prospective study.

Amir H. Khandani, MD, PhD^a
Frank C. Detterbeck, MD^b
Department of Radiology^a
UNC School of Medicine
CB #7510, Chapel Hill, NC 27599-7510
E-mail: khandani@med.unc.edu
Department of Surgery^b
Yale University School of Medicine
New Haven, Conn