using the same treatment comparisons and the same end points as before. With the additional 5,000 or so patients from these two trials, both of which demonstrated a significant treatment effect, the resulting meta-analyses yield more significant results in favor of treatment.

Of the 12 analyses rerun on the end points of total strokes, total deaths, and nonfatal strokes or death, 10 are now significant in favor of treatment. For the analyses of all aspirin regimens (6,407–6,467 patients), aspirin combined with sulfipyrazone or dipyridamole (3,226 patients), and all antiplatelet agents (6,801–6,859 patients), the results are significantly in favor of treatment for all end points, with odds ratios (ORs) ranging from 0.59 to 0.80, all significant. In addition, for aspirin alone (3,549–3,669 patients), the combined end point of stroke or death yielded a significant result (OR = 0.82, 95% confidence interval [CI] = 0.69–0.96), but total deaths (OR = 0.87, 95% CI = 0.70–1.08) or total strokes (OR = 0.83, 95% CI = 0.67–1.02) did not, although a trend favoring treatment is apparent. Our original analyses of non-aspirin antiplatelet agents remain unchanged (not significant) since these two new trials did not add data to this particular question.

Our reanalysis shows that there are now sufficient data to conclude that aspirin, at least in combination with sulfipyrazone or dipyridamole, is effective in preventing stroke or death after a TIA. However, our results also demonstrated a significant accompanying risk of peptic ulcer and gastrointestinal bleeding.

Even though the trend is becoming clearer, we still contend that the benefit of aspirin or other antiplatelet agents when used alone has yet to be unequivocally demonstrated. We await the availability of more data to update this analysis again soon.

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References

Transesophageal Two-Dimensional Echocardiography and Embolic Stroke

To the Editor:

Despite extensive cardiac investigations, the cause of cardioembolic stroke remains unclear in up to 40% of cases.1,2 The yield is especially low in patients in whom the responsible thrombus is located in the left atrium or the left atrial appendage.3 Transesophageal two-dimensional echocardiography (2-DE), a recently introduced technique, can readily visualize the left atrial appendage and may prove very helpful in patients in whom atrial thrombi are suspected, especially in patients in whom conventional transthoracic 2-DE is nondiagnostic.4 We believe that the following case illustrates this point well.

A 41-year-old, previously healthy man was admitted to the hospital for investigation of left shoulder and leg weakness that had developed suddenly on the day of admission. There were no identifiable risk factors for cerebrovascular disease. General physical examination was normal. Neurologic examination revealed a moderate degree of left shoulder weakness and severe weakness of the left leg in an upper motor neuron distribution; the remainder of the neurologic examination was normal. Initial computed tomogram (CT scan) of his head on the day of admission was normal. A subsequent CT scan done 5 days after admission showed a hemorrhagic infarction in the distribution of the anterior cerebral artery. Results of cerebral arterial angiography were normal; 2-DE showed normal cardiac valves and normal ventricular wall motion. A questionable abnormality in the left atrium was believed to be either the anomalous orifice of a pulmonary vein or possibly a small thrombus. The patient subsequently had transesophageal 2-DE, which clearly showed a thrombus adherent to the wall of the left atrium. The patient was anticoagulated and showed a nearly complete recovery within 40 days of the ischemic event.

Cardiac 2-DE is an excellent technique for the investigation of thrombi in the left ventricle, ventricular wall motion abnormalities, and valvular structural defects, with a sensitivity of 77–91%.3 Unfortunately, 2-DE has not shown similar promise for the investigation of the left atrium; in one such study, only a third of surgically proven thrombi were detected by transthoracic 2-DE.4 A left atrial appendage can be easily seen using transesophageal 2-DE because of the proximity of the left atrium to the esophagus and the ability to scan the left atrium freely from an esophageal transducer position.5 Aschenberg et al6 recently reported their experience with the use of transesophageal 2-DE in detecting left atrial thrombi. Six of 21 patients with mitral valve stenosis had a left atrial thrombus diagnosed with transesophageal 2-DE; transthoracic 2-DE done at the same time failed to detect any of these thrombi. These findings were all subsequently confirmed on cardiac surgery. More importantly, no additional thrombi were found at surgery in the remainder of the patients.6 The technique of transesophageal 2-DE may thus prove helpful in the diagnosis of thromboembolism where other cardiac investigations are unrewarding.

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References
Transesophageal two-dimensional echocardiography and embolic stroke.

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