

ECT a Potential Lifesaver in Comorbid PTSD, Major Depression

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NEW YORK — The use of electroconvulsive therapy (ECT) in individuals with posttraumatic stress disorder (PTSD) and comorbid major depression may substantially reduce the risk for all-cause mortality, cardiovascular mortality, and suicide in this patient population, new research suggests.

A retrospective study conducted by investigators at Captain James Lovell Federal Health Care Center (FHCC) – Rosalind Franklin University of Medicine and Science in North Chicago, Illinois, showed that among patients with PTSD and major depressive disorder (MDD), the death rate among those who did not receive ECT was significantly greater than that of their counterparts who received ECT.

In addition, at 8-year follow-up, ECT was associated with a significant reduction in relative risk (RR) in all-cause mortality and suicidal behaviors among patients with PTSD and MDD.

"The finding that all-cause mortality was almost double — 18% vs 9.7% — in those with PTSD and major depression who did not receive ECT was very much a surprise to us," lead investigator Naser Ahmadi, MD, PhD, told Medscape Medical News. The study was presented here at the American Psychiatric Association's 2014 Annual Meeting.

Frequent Bedfellows

According to the investigators, PTSD and MDD frequently coexist, with up to 48% of patients with PTSD having comorbid MDD. PTSD is associated with poor outcomes as well as other comorbid psychiatric and medical conditions.

Although numerous studies have shown that ECT is the most effective treatment for refractory depression, its long-term effect on PTSD and MDD is unclear.

The investigators' initial hypothesis was that the mortality rate in patients with PTSD and MDD who received ECT would be no different from the mortality rate in patients with major depression who received ECT. "So basically, we wanted to make sure that ECT wasn't contraindicated in patients with comorbid PTSD and major depression," said Dr. Ahmadi.

To determine the long-term impact of ECT on outcomes in patients with MDD and PTSD, Dr. Ahmadi and colleagues conducted a retrospective nested matched case-control study based on diagnostic and outcomes data from Veterans Affairs electronic medical records of 22,164 patients at FHCC — 3485 with MDD and PTSD and 18,679 without either condition.

Of the 3485 patients with both conditions, 92 received ECT and 3393 did not. The ECT protocol was bifrontal and administered at 250% above the seizure threshold for an average of 6.5 treatments. Brief, light general anesthesia was used during the treatment, and succinylcholine was used for muscle relaxation.

At a median follow-up of 8 years (2004-2013), study results revealed that the death rate was 8% (1495/18,679) in patients without PTSD and MDD, 9.7% (9/92) in patients with PTSD and MDD who received ECT, and 18% (612/3393) in those with PTSD and MDD who did not receive ECT ($P < .05$).

The researchers also found that there was a marked improvement in PTSD and MDD symptoms with ECT (90%) compared with treatment with antidepressants alone (50%).

Cox regression survival analyses revealed that the RR for all-cause mortality was 85% higher in patients with PTSD and MDD who did not receive ECT compared with their counterparts who did receive ECT (RR, 1.85; 95% confidence interval [CI], 1.69 - 2.01; $P = .001$). In addition, the RR for suicidal behavior was 350% higher (RR, 4.54; 95% CI, 3.22 - 7.14) in patients with PTSD and MDD without ECT vs patients who received the treatment.

Furthermore, adjusted analyses revealed that ECT significantly reduced cardiovascular mortality in patients with PTSD and MDD compared with their counterparts who did not receive the treatment (RR, 0.56; 95% CI, 0.29 - 0.62; $P = .01$).

The researchers also report similar findings among patients with MDD alone; the RR for mortality was 96% higher in patients who did not receive ECT compared with those who did (RR, 1.96; 95% CI, 1.45 - 2.16; P = .001).

In addition, the RR for all-cause mortality was not significantly different among patients with MDD and PTSD who received ECT and matched control individuals (RR, 1.37; 95% CI, 0.14 - 11.95; P = .81).

In contrast, the RR for all-cause mortality was 115% higher in patients with PTSD and MDD who did not receive ECT treatment compared with the matched cohort without MDD and PTSD (RR, 2.15; 95% CI, 1.96 - 2.35; P = .001).

Ready for Prime Time

Previous research in major depression suggests that ECT improves endothelial function, a finding that may explain its positive impact on cardiovascular mortality. Overall, said Dr. Ahmadi, he and his colleagues believe the positive, long-term effect of ECT in PTSD patients may be attributed to its antiinflammatory effect.

"We know that ECT has an antiinflammatory effect, and we also know from studies in cardiovascular disease that by reducing inflammation via statin therapy, we can decrease cardiovascular mortality by 20% to 30% across the board. ECT reduces inflammation, reducing cardiovascular mortality by 44%. This highlights that we should go beyond the conventional approach of addressing psychiatric symptoms of PTSD only and tackle the underlying inflammation pathway of PTSD by ECT," he said.

On the basis of the study's findings, clinicians should consider ECT as a first-line treatment option for patients with comorbid PTSD and MDD, said Dr. Ahmadi.

"Assuming there are no ECT contraindications, there is no reason not to do ECT in PTSD, and patients will benefit. It has a rapid effect, and we currently offer it at our center to patients with PTSD and major depression."

He noted that the ECT treatment has a rapid effect, with improvement often seen in a few sessions, and has few side effects. Dr. Ahmadi also pointed out that the American Psychiatric Association recommends ECT as first-line therapy for major depression when it is available.

"Patients with PTSD live on a daily basis, they don't have plans for future. Therefore, they tend to have not taken care of self well and have a poor compliance to treatment — so if patients with PTSD receive a therapy that is short, tangible, and effective, the chance of adherence, follow-up, and favorable outcome is much, much greater than giving them medication," he said.

New Frontier

Commenting on the study for Medscape Medical News, Iqbal (Ike) Ahmed, MD, clinical professor of psychiatry and geriatric medicine at the University of Hawaii at Manoa, said the findings suggest that ECT has a direct effect on PTSD beyond its antidepressant effect.

"PTSD and major depression both have been associated with medical comorbidity, partly because inflammatory markers are associated with both disorders. We know there are cardiovascular risks from depression itself, and the American Heart Association recently noted that it is one of the risk factors for poor outcomes in cardiovascular disease. There is less literature on PTSD, but there have been studies showing it increases inflammation and the risk for cardiovascular mortality and all-cause mortality," said Dr. Ahmed.

He added that antidepressants do not appear to improve outcomes in patients with depression and comorbid cardiovascular disease. In contrast, he said, this study suggests that ECT may have a more robust impact and improve all-cause as well as cardiovascular mortality.

"Maybe there is some inherent biological activity of ECT which may reduce inflammatory markers and improve mortality rate. This is potentially a new frontier in the treatment of PTSD," said Dr. Ahmed.

However, he noted, a major limitation of the current study is its retrospective design. Nevertheless, he added, this study is a good first step toward investigating a promising treatment in this difficult-to-treat patient population.

Dr. Ahmadi and Dr. Ahmed report no relevant financial relationships.

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