Stereotaxic Hypothalamotomy for Control of Violent, Aggressive Behavior

Preliminary Observations

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Abstract

We report our experience with the technique of Sano and co-workers for bilateral two-stage posteromedial hypothalamotomy in 3 adolescents and 1 young adult patient with long-standing history of violent, aggressive behavior unresponsive to drug therapy. Two of the patients were severely retarded, one had borderline intelligence, and the fourth had normal IQ. All had diffuse EEG abnormalities. The procedures were carried out in two stages approximately 1 month apart; a total of 10 operations were performed (two patients required repeat lesions). The anatomical target was 2 mm below the midpoint of the AC-PC line and 2 mm lateral to the wall of the third ventricle. In all but one case, the final locus for the radiofrequency lesion was based on physiological responses during local electrical stimulation in the region of the anatomical target. Transient sympathetic response consisting of tachycardia and elevation in arterial blood pressure appeared to be the most critical confirmatory factors associated with a good therapeutic response. Unilateral or bilateral pupillary dilatation as well as medial and downward deviation of the eyes was a less reliable criterion of appropriate locus. There were no serious or permanent postoperative complications, and no gross alterations in intelligence, initiative, or appetite. Followed 14–23 months thus far, all patients have had a moderately good behavioral response, with marked reduction in dosage of tranquilizer medication required to control behavior. It is of interest that in two of the patients preoperative serum serotonin was low, but rose to normal levels after hypothalamotomy. The significance of alterations in serum serotonin concentration in response to a hypothalamic lesion is not clear. Tentative conclusion: Bilateral hypothalamotomy appears to be safe and moderately effective in controlling violent aggressive behavior. Further trials seem warranted.

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