

# Quantification of Sialorrhea Reduction After Unilateral Parotid Electron Beam Radiotherapy in Debilitating Neurological Disorders

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**Abstracts will be considered for both poster and platform presentations**

## ALS

**Background/Hypothesis:** Sialorrhea causes significant problems in many patients with neurologic conditions. Treatment mainstays include anticholinergic medications and botulinum toxin. Recently, small studies found that unilateral parotid electron beam radiotherapy (EBRT) is effective at reducing saliva production. The goal of this study was to measure saliva production post EBRT and to evaluate patients' subjective responses.

**Methods:** Twelve amyotrophic lateral sclerosis (ALS) patients with medically refractory sialorrhea were enrolled in this study and treated with unilateral EBRT. Pre and Post EBRT unstimulated saliva measurements and drooling surveys were recorded. These measurements were taken multiple times and dichotomized into measurements <30 days post treatment or >30 days post treatment. An additional 35 patients previously received the procedure and saliva measurements from these patients were included in a separate analysis totaling 47 patients who received this treatment.

**Results:** Compared to pre-treatment levels, a 60% reduction in saliva production was observed in all patients on the treated side (at <30 days p=0.0006, at >30 days p=0.0004). The effect appeared to be permanent at least out to 2 years. Significant clinical improvements were a decrease in choking or severe coughing episodes (at <30 days p=0.029, at >30 days p=0.025), and a subjective decrease in salivation (at >30 days p=0.017). Of the 47 patients who received this treatment, only one reported a minor complication of redness post procedure.

**Discussion:** This study confirms that unilateral EBRT is a safe and effective treatment and leads to a permanent 60% reduction in unstimulated saliva production. Sialorrhea is a complex problem to manage, with many different secretion types and associated problems. It is important to learn what clinical improvements can be anticipated from this therapy in order to best manage sialorrhea. There were many areas that the patients did not report improvement, such as skin irritation and drooling while sleeping. The symptomatic benefits reported in our study will be very helpful to understand the role of EBRT in managing these complex patients.

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