Radiofrequency Bipolar Ablation Therapy for Primary Aldosteronism Patients

- Investigator-Initiated Exploratory Clinical Trial -

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**Purpose**

To evaluate safety and efficacy of percutaneous radiofrequency ablation therapy for unilateral aldosterone producing adrenal adenoma in normalizing aldosterone secretion.

**Patients**

Eight cases of aldosterone producing adrenal adenoma with following conditions:

- CT detectable adenoma without any risky organs on a puncture route.
- Intervening adipose tissue between target adenoma and adjacent risky organs (pancreas or intestine).
- Unilateral single functioning macroadenoma with aldosterone hypersecretion proven by adrenal venous sampling.

**Left aldosterone producing adenoma**

- Before RFA
- After RFA
- RFA with two bipolar ablation needles
- Enhancement of the adenoma was disappeared after RFA
- Serum aldosterone was decreased

![Diagram showing left aldosterone producing adenoma before and after RFA.](image)

**Right aldosterone producing adenoma**

- Before RFA
- After RFA
- Transhepatic puncture of the adenoma
- RFA with single bipolar ablation needle
- Serum aldosterone was decreased

![Diagram showing right aldosterone producing adenoma before and after RFA.](image)

**Results**

- **Serum Aldosterone Level**
  - Day 0: 11.8 ng/dL to 8 ng/dL
  - Day 28: 3.8 ng/dL

- **24hr Urine Aldosterone Excretion**
  - Day 0: 50 µg/day to 7 µg/day
  - Day 28: 10.6 µg/day

In all cases, aldosterone levels in serum and 24-hour urine were significantly decreased; Serum potassium level was normalized without anti-aldosterone therapy. Postoperative CT showed complete ablation in 6 cases and subtle residual enhanced area in two cases. Doses of anti-hypertensive medication were reduced in all cases including two drug-free patients after ablation. No severe procedure-related complication was observed.

**Conclusion**

Bipolar radiofrequency ablation is suggested to be safety and effective in treating primary aldosteronism.