



# Real-World Clinical Outcomes, Healthcare Resource Utilisation, and Direct Medical Costs in Atrial Fibrillation Patients Receiving Catheter Ablation in Japan

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## BACKGROUND

Atrial fibrillation (AF) patients suffer from irregular and often rapid heart rhythms, with catheter ablation serving as an important intervention for achieving sinus rhythm control. However, the clinical and economic outcomes of post-ablation AF patients in Japan are still poorly understood.

## OBJECTIVE

To describe the clinical outcomes, direct medical costs, and healthcare resource utilisation (HCRU) in post-ablation AF patients in Japan in the real-world setting.

## METHODS

- Design:** Retrospective cohort study
- Database:** The Medical Data Vision (MDV) is a claims database comprised of anonymised hospital data from over 480 hospitals in Japan, covering approximately 26% of acute phase hospitals and data for 44 million people
- Study population:** All eligible AF patients (ICD-10 codes: I480, I481, I482, I489) receiving catheter ablation of transseptal puncture (Kubuncode: K595-1\*) from Jan 2012 to Aug 2021, with at least 1 year follow-up
- Cohort follow-up:** From the date of the first ablation of each patient until the last medical record in the database or the end of data availability, whichever came first
- Identification of complication:** Presence of records of relevant diagnosis or procedure codes after the index ablation and during the hospitalisation for the first ablation
- Statistical analysis:** Results were summarised using descriptive statistics; Wilcoxon rank-sum test was performed to compare between patients with and without complications

\* Ablation types were identified using receiptcodes beginning with '7', which are not listed here

## RESULTS

- Total patients:** 20,306 patients were included in the analysis (Refer to Table 1 for baseline characteristics)

- Repeated ablation:** The estimated incidence rate was 0.075 per person-year, with 16.1%, 2.2%, and 0.5% of the patients experiencing 1, 2, and ≥3 repeated ablations, respectively

- Complications:** Overall, 2.0% of patients experienced at least one complication after the index ablation procedure, including 1.0% cardiac, 0.3% pulmonary, 0.2% neurological, 0.2% vascular access, and 0.7% others; No atrioesophageal fistula records were found

- Medical costs and HCRU:**
  - The median annual direct medical cost was ¥1.53 million in total
  - Patients with post-ablation complications had a significantly longer median length of index hospitalisation and significantly higher median annual direct medical cost compared to those without complications (Table 2)

**Table 2: Annual direct medical cost and length of index hospital stay for AF patients with and without post-ablation complications**

Median (IQR)	Any complications		
	Yes (N=409)	No (N=19,897)	P-value
Annual direct medical cost (in 1,000 JPY)	2,077 (2109)	1,520 (1375)	< 0.0001
Length of index hospital stay (days)	14 (17)	4 (2)	< 0.0001

**Table 1: Baseline patient characteristics**

	All patients (N = 20,306)
Age, Mean (SD)	68.9 (9.8)
Sex	
Female	6,473 (31.9%)
Male	13,833 (68.1%)
Type of index ablation	
Thermo-ablation	15,996 (78.8%)
Cryoablation	2,015 (9.9%)
Both	2,113 (10.4%)
Unspecified	182 (0.9%)
Type of baseline AF	
Paroxysmal	10,987 (54.1%)
Persistent	4,210 (20.7%)
Permanent	431 (2.1%)
Unspecified	4,678 (23.0%)

## CONCLUSIONS

- AF patients experiencing complications after the index catheter ablation incurred significantly higher direct medical costs and HCRU
- This study offers essential data for future value assessment of ablation technologies in the Japanese context

## LIMITATIONS

- Claims data are subject to limitations such as misclassification of codes
- It is not possible to track the same patient across different hospitals using the MDV database as they would be represented with different patient identifiers
- Complications occurring several weeks after the ablation can be challenging to identify