Real-World Burden of Rotator Cuff Tear in Japan: A Descriptive Analysis of Treatment Patterns and Costs from a Large Claims Database

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Background & Objectives

- Rotator cuff tear (RCT), commonly caused by degeneration of the shoulder tendon, is a leading cause of shoulder pain globally;[1] in Japan, its prevalence can be expected to rise due to the ageing population.[2]
- RCT can be managed conservatively, with medication and physical therapy, or surgically with a rotator cuff repair (RCR).[1–3]
- This analysis aimed to understand current treatment patterns for RCT and the associated economic burden in Japan.

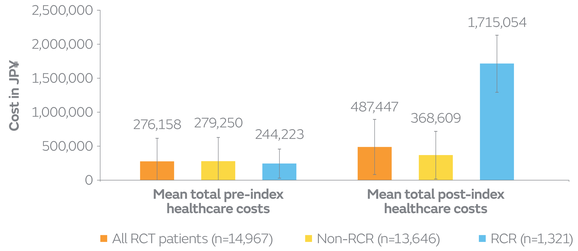
Methods

- Japanese health insurance claims data from JMDC between January 2012–February 2021 were used in this analysis.
- Patients aged ≥18 years were eligible if they had ≥1 inpatient claim or ≥2 non-diagnostic outpatient claims (≥1 month apart) for RCT, and 12 months' pre- and post-index continuous enrollment. The index month was the month of the first RCT claim.
- Healthcare costs and resource use were examined in the 12-month pre-index and 12-month post-index periods.
- The RCR cohort was defined as patients with an RCR-related procedure code during the 12-month post-index period.

Results

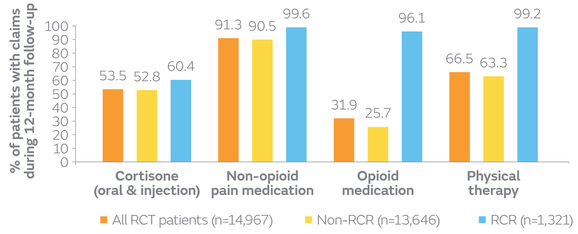
- A total of 14,967 RCT patients were indexed (62.5% male; mean age 52.2; **Table 1**).
- Of these patients, 4,875 (32.6%) were initially diagnosed with tendinosis (a broader, less severe diagnosis) and had RCT diagnosed after a mean 5.5 months. Only 843 (5.6%) of patients received specific diagnoses of partial or complete RCT.
- Within 12 months post-index, 1,321 (8.8%) patients received RCR surgery.
- Pre-index medication use was similar for RCR vs non-RCR patients for non-opioids (78.4% vs 72.7%), opioids (22.3% vs 20.7%) and cortisone medications (38.5% vs 28.0%).
- The mean pre-index total all-cause healthcare costs were higher for non-RCR vs RCR patients (**Figure 1**); however, standard deviations (SDs) were wide and median pre-index costs were higher for RCR patients (¥129,870) than non-RCR patients (¥112,710).
- Post-index, all-cause opioid use was higher for RCR patients (96.1%), but remained substantial for non-RCR patients (25.7%). Cortisone and non-opioid pain medication use were similar across both groups (**Figure 2**).
- Almost all RCR patients (99.2%) received physical therapy compared with 63.3% of non-RCR patients (**Figure 2**, **Table 2**).
- Post-index mean all-cause outpatient costs were higher for RCR patients than non-RCR patients (**Table 2**).
- Almost all RCR patients (99.8%) had all-cause inpatient stays, while 10.3% of non-RCR patients received in-hospital care (**Table 2**); correspondingly, mean total post-index healthcare costs were higher for RCR patients (**Figure 1**).

Figure 1. All-cause healthcare costs during 12-month pre- and post-index follow-up



Abbreviations: JP: Japan; RCR: rotator cuff repair; RCT: rotator cuff tear.
Error bars represent standard deviations, truncated at 0.

Figure 2. All-cause post-index follow-up healthcare resource use



Abbreviations: RCR: rotator cuff repair; RCT: rotator cuff tear.

In Japan, time to RCT diagnosis can be substantial, with considerable healthcare burden and costs before and after diagnosis in patients either surgically or conservatively managed

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Table 1. Demographic characteristics of included patients

Demographic Characteristics	All RCT Patients N=14,967	Non-RCR Patients N=13,646	RCR Patients N=1,321
Age, Mean±SD	52.2±10.9	51.9±11.1	55.5±8.8
Median	53.0	53.0	56.0
Sex, N (%)			
Male	9,352 (62.5%)	8,446 (61.9%)	906 (68.6%)
Female	5,615 (37.5%)	5,200 (38.1%)	415 (31.4%)

Abbreviations: RCR: rotator cuff repair; RCT: rotator cuff tear; SD: standard deviation.

Table 2. All-cause healthcare resource use and costs during 12-month post-index follow-up

Rotator Cuff Treatment Characteristics	All RCT Patients N=14,967	Non-RCR Patients N=13,646	RCR Patients N=1,321
Inpatient admissions, N (%)			
Patients with an admission	2,730 (18.2%)	1,411 (10.3%)	1,319 (99.8%)
Treatment characteristics, N (%)			
Physical therapy	9,953 (66.5%)	8,643 (63.3%)	1,310 (99.2%)
Non-opioid pain medications	13,659 (91.3%)	12,343 (90.5%)	1,316 (99.6%)
Opioid medications	4,778 (31.9%)	3,509 (25.7%)	1,269 (96.1%)
Cortisone	8,006 (53.5%)	7,208 (52.8%)	798 (60.4%)
Patients with cortisone injections	7,710 (51.5%)	6,930 (50.8%)	780 (59.0%)
Patients with cortisone oral use	845 (5.6%)	759 (5.6%)	86 (6.5%)
Inpatient costs, Mean±SD	¥1,102,143±¥1,068,220	¥916,284±¥1,277,012	¥1,300,965±¥735,918
Median	¥897,345	¥539,800	¥1,142,470
Outpatient costs, Mean±SD	¥286,453±¥417,504	¥273,905±¥423,720	¥416,059±¥319,309
Median	¥203,570	¥189,800	¥356,260

Abbreviations: RCR: rotator cuff repair; RCT: rotator cuff tear; SD: standard deviation.

Conclusions

- In Japan, many patients receive delayed RCT diagnoses, which are often also non-specific to partial/complete tears.
- Furthermore, while costs are high within a year of the first RCT-related intervention for RCR patients, non-RCR patients present a substantial and continuing healthcare burden due to prolonged and recurring treatment and associated costs.
- Improving the identification of patients who may benefit from surgery could lead to more cost-effective treatment outcomes.

Disclosures
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