

Real-World Experience and Unmet Needs in the Current Management of Recurrent Pericarditis : A Physician Survey and Medical Chart Review

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BACKGROUND

- Recurrent pericarditis (RP) is defined as pericarditis after an initial episode of acute pericarditis and an intercurrent symptom-free period of at least 4–6 weeks. Approximately 30% of patients with a first acute pericarditis episode experience a recurrence within 18 months¹
- A prior study reported 74% higher total healthcare costs among patients with at least 2 recurrences than among patients with a single pericarditis episode¹
- Conventional pharmaceutical treatment for RP includes non-steroidal anti-inflammatory drugs (NSAIDs), colchicine, and corticosteroids. Additional treatment options include intravenous immunoglobulins, anakinra, or azathioprine²
- None of these therapeutics has been approved by regulatory authorities for the treatment of RP, and approximately 40% of RP patients still suffer from multiple recurrences due to inadequate responses³
- ARCALYST® (riloncept) is the first and only approved therapeutical option for RP treatment, having been recently approved by the Food and Drug Administration (FDA) in 2021. Riloncept has been shown to reduce the risk of recurrence in adults and children 12 years and older with RP⁴
- Currently, there are no guidelines for pericarditis management in the United States (US). European Society of Cardiology (ESC) guidelines for recurrent pericarditis, last updated in 2015, recommend treatment with NSAIDs and/or colchicine, with subsequent addition of preferably low-dose corticosteroids in cases of incomplete response or intolerance. In patients not responding or intolerant to ASA/NSAIDs, colchicine, and/or corticosteroids, immunosuppressants such as azathioprine (AZA) or intravenous immunoglobulins (IVIG), or targeted therapies such as interleukin-1 (IL-1) antagonists are sometimes used^{2,5}
- Few studies have described the current real-world pharmacotherapy of RP and the unmet needs in disease management

OBJECTIVE

- This study evaluated current management and unmet needs in the treatment of RP using data from a physician survey and medical chart review

METHODS

- An online physician panel-based survey and a medical chart review were conducted among cardiologists and rheumatologists in the US. The study was granted an exemption from full institutional review board (IRB) review by the WCG IRB
 - Board-certified cardiologists and rheumatologists were recruited from a nationally-representative physician panel
 - Each participating physician was required to complete the physician survey and abstract chart data for 1-4 randomly selected patients using an online questionnaire
 - The questionnaire was pre-tested for clarity and accuracy by physicians with experience managing RP
 - Respondents completed data entry between August 12, 2021 and September 23, 2021. All data collected were anonymous and no personally identifiable information was collected
 - The physician survey collected data on physician characteristics, RP management experience, and RP-related perceptions
 - The chart review collected data on patient demographics, RP disease experience and treatment experience
- Descriptive statistics were summarized using the collected physician and patient data

Physician eligibility criteria

- Practiced for at least 3 years as a cardiologist or rheumatologist
- Spent at least 20% of time performing direct patient care
- Have treated at least 2 eligible patients with RP
- Not an employee of the pharmaceutical industry, medical equipment manufacturers, or insurance providers

Patient eligibility criteria

- At least two pericarditis recurrences following an initial acute pericarditis episode and a symptom-free period of ≥ 4 weeks. RP diagnosis was defined as the second pericarditis recurrence following the initial acute episode (i.e., 3rd pericarditis episode)
- At least one recurrence episode must meet ≥ 2 of the following four ESC diagnostic criteria: pericardial chest pain, pericardial rub, new widespread ST-elevation or PR depression on ECG, pericardial effusion (new or worsening)
- 12 years of age or older at the time of the RP diagnosis
- Medical history and treatment history data are available since the initial acute episode and at least 1 year after RP diagnosis
- Patients were excluded if they 1) have pericarditis secondary to the following etiologies: tuberculosis; neoplastic, purulent, or radiation etiologies; post-thoracic blunt trauma (e.g., motor vehicle accident); or systemic autoimmune diseases, or 2) have incomplete chart data on key data elements (i.e., dates of recurrence episodes, symptoms, and treatments received), or 3) have not been under the participating physician's care since the RP diagnosis

RESULTS

Patient characteristics

- 304 patients with RP were included; the median duration of disease was 1.4 years (interquartile range [IQR]: 0.8, 2.7)
- Patients' mean age at RP diagnosis was 47 years, and 45% of patients were female
- The median time from the initial acute pericarditis episode to RP diagnosis was 8.2 months (IQR: 4.7, 15.8)
- The predominant underlying cause of RP diagnosis was idiopathic (in 83% of patients), followed by post-viral (10%), post-surgical (5%), and post-COVID-19 vaccine (2%) etiologies

TABLE 1. PATIENT CHARACTERISTICS

	Total (N=304)
Age (years) at RP diagnosis, Mean ± SD	47.0 ± 15.2
12-17 years, n (%)	8 (2.6%)
18-64 years, n (%)	256 (84.2%)
≥ 65 years, n (%)	40 (13.2%)
Race, n (%)	
White	220 (72.4%)
Black	56 (18.4%)
Other	28 (9.2%)
Setting for care, n (%)	
Private practice or office-based	186 (61.2%)
Academic university or teaching hospital	108 (35.5%)
Other/unknown	10 (3.3%)
Manifestations of RP at diagnosis	
Elevation of CRP	238 (78.3%)
Elevation of ESR	200 (65.8%)
Pericardial effusion	49 (16.1%)
Pericardial rub	53 (17.4%)
ST segment elevation or PR depression	178 (58.6%)

RP, recurrent pericarditis; SD, standard deviation; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate.

Clinical burden of RP

- 87.5% of patients had experienced 2 or 3 recurrences after the initial acute pericarditis episode
- The most common symptoms at a typical recurrence that drove patients to seek care were chest pain (94%), dyspnea (41%), fatigue (19%), and anxiety (16%)
- 44% of RP patients reported lack of resolution of presenting symptoms after seeking medical care; Patients also reported additional symptoms after resolution of presenting symptoms lasting a median of 14 days (IQR: 5.0, 22.5)
- The median duration of symptoms at the most recent recurrence was 7 days (IQR: 4, 14) with 18% patients hospitalized
- The median number of outpatient visits was 2 (IQR: 2, 4) in the 1-year period after RP diagnosis; lab tests and medical imaging were routinely used for pericarditis monitoring: C-reactive protein (74%), erythrocyte sedimentation rate (62%), echocardiogram (70%), electrocardiogram (66%)
- The mostly commonly reported comorbidities among RP patients were hypertension (47%), followed by anxiety (21%), diabetes (19%), and depression (13%); the most common newly developed comorbidities reported by patients after RP diagnosis were anxiety (9%) and depression (4%)

TABLE 2. CLINICAL BURDEN OF RP

	Total (N=304)
Patients who had 2-3 recurrences after the initial acute pericarditis episode, n (%)	266 (87.5%)
Residual symptoms that occurred after the presenting symptoms were resolved	
Presenting symptoms never resolved	134 (44.2%)
Anxiety	22 (7.3%)
Fatigue	19 (6.3%)
Pain in back, neck, or shoulder	14 (4.6%)
Duration of residual symptoms (days)	
Mean ± SD	19.8 ± 31.1
Median (IQR)	14.0 (5.0, 22.5)

IQR, interquartile range; RP, recurrent pericarditis; SD, standard deviation.

Treatments for pericarditis

- Combination therapy with NSAID + colchicine was the most common regimen for both the initial acute pericarditis episode (42%) and the RP episode (30%)
- Combination therapy with NSAID + colchicine+ corticosteroids was used in 8% patients for the initial acute pericarditis episode and in 13% patients for the RP episode

TABLE 3. TREATMENTS FOR PERICARDITIS

	Medications used for the initial acute pericarditis episode, n (%)	Medications used for RP, n (%)
Medications¹ (N =304)		
NSAID monotherapy	84 (27.6%)	24 (7.9%)
Colchicine monotherapy	16 (5.3%)	36 (11.8%)
NSAID + Colchicine ± other	129 (42.4%)	92 (30.3%)
NSAID + Corticosteroids ± other	22 (7.2%)	16 (5.3%)
Colchicine + Corticosteroids ± other	8 (2.6%)	24 (7.9%)
NSAID + Colchicine+ Corticosteroids ± other	24 (7.9%)	38 (12.5%)
Other	21 (6.9%)	74 (24.3%)

NSAID, non-steroidal anti-inflammatory drug; RP, recurrent pericarditis.

1. "Other" treatments in the combination therapy refer to other RP treatments that are not NSAID, colchicine, or corticosteroid

Physician RP management experience

- 42% physicians responded that they follow European Society of Cardiology (ESC) pericardial disease guidelines when diagnosing and managing RP disease; 17% physicians indicated that they do not follow any specific guidelines
- Among physicians who have prescribed therapies for RP, 82% were "very" or "somewhat" satisfied with riloncept, 75% with colchicine, and 74% with anakinra. In addition, 26% were "very" or "somewhat" dissatisfied with corticosteroids, 23% with NSAIDs, 18% with azathioprine, 10% with anakinra, and 9% with colchicine (**Figure 1**)
- Over 80% of physicians indicated moderate-to-substantial unmet needs with the existing RP treatments regarding recurrence prevention and tolerability profile (**Figure 2**)

FIGURE 1. PHYSICIANS EVALUATION OF CURRENT RP TREATMENT

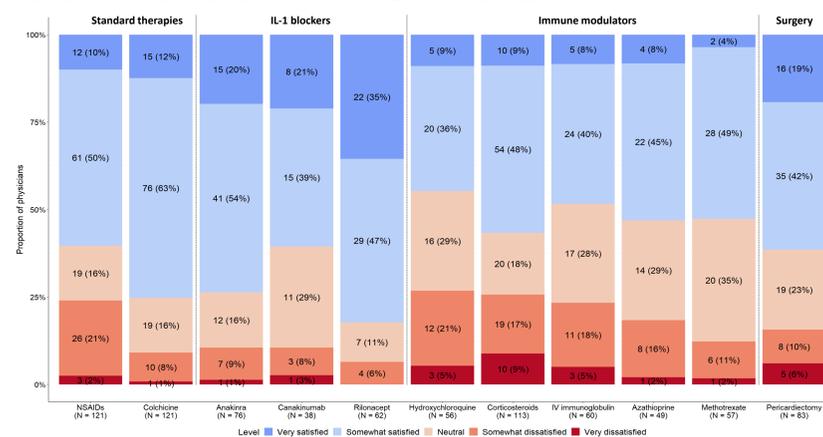
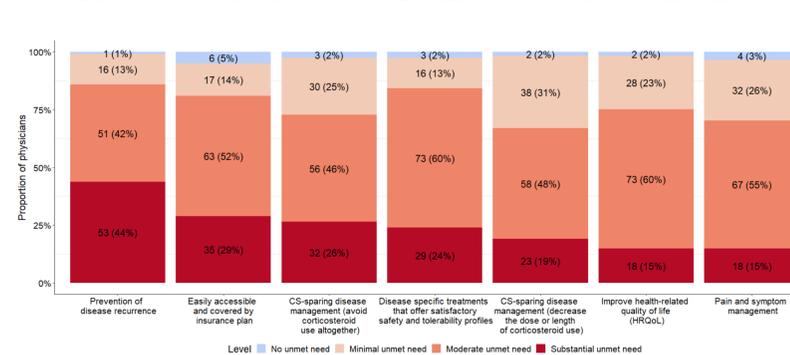


FIGURE 2. PHYSICIAN'S PERCEPTION OF UNMET NEEDS WITH CURRENT RP TREATMENTS



CS, corticosteroids; HRQoL, health-related quality of life; IV, intravenous; NSAIDs, Nonsteroidal anti-inflammatory drugs; RP, recurrent pericarditis.

Notes:

- Riloncept was recently approved by FDA in March 2021
- Satisfaction for each treatment was asked among physicians who have prescribed the treatment for RP

CONCLUSIONS

- The findings from this study indicate that RP is associated with considerable disease burden, including prolonged symptoms, hospitalization, and frequent disease recurrence
- Physicians who participated in the physician survey perceived that conventional RP treatments, such as colchicine and corticosteroids, were inadequate in managing the disease due to tolerability issues, and the inability to control symptoms or prevent pericarditis recurrence
- Even though the 2015 ESC guideline recommended combination therapy of NSAID + colchicine+ corticosteroids for the treatment of RP, only 13% of patients in this study were prescribed this combination therapy with or without other treatments
- Novel treatments for RP with an improved efficacy and tolerability profile, may help address the unmet medical needs for RP management with the conventional treatments; updated guidelines based on up-to-date treatment landscape and clinical evidence may be needed to better inform clinicians on managing RP

LIMITATIONS

- As a retrospective physician survey and chart-review study, this study is subject to limitations such as recall bias, missing or inaccurate data recorded in patient charts, and a sample that may not fully represent the broader physician population and RP patient population
 - Physicians surveyed were from all census regions and from both the private and academic setting in the US, which helped maximize the representativeness of the physician population
 - Logic checks and the random selection process were built into the online survey to minimize data inaccuracy and bias in patient chart selection, respectively