

1 Original Article

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10 **Thrombocytosis as a prognostic factor in**
11 **polymyalgia rheumatica: Characteristics**
12 **determined from cluster analysis**

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24 Abstract

25 **Aims:** This study aimed to identify the clinical subgroups of polymyalgia rheumatica
26 (PMR) using cluster analysis and compare the outcomes among the identified subgroups.

27 **Methods:** We enrolled patients with PMR who were diagnosed at Okayama University
28 Hospital between 2006 and 2017, met the 2012 European League Against
29 Rheumatism/American College of Rheumatology provisional classification criteria for
30 PMR, and were treated with glucocorticoids. Hierarchical cluster analysis using
31 variables selected by principal component analysis was performed to identify the
32 clusters. Subsequently, the outcomes among the identified clusters were compared in
33 the study. The primary outcome was treatment response at 1 month after
34 commencement of treatments. The secondary outcome was refractory clinical course,
35 which was defined as the requirement of additional treatments and/or relapse during a 2-
36 year observational period.

37 **Results:** A total of 61 consecutive patients with PMR were enrolled in the study. Their
38 mean age was 71 years, and 67% were female. Hierarchical cluster analysis revealed
39 three distinct subgroups: cluster 1 (n = 14) was characterized by patients with
40 thrombocytosis (all patients showed a platelet count of $>45 \times 10^4/\mu\text{L}$), cluster 2 (n = 38),
41 by patients without peripheral arthritis, and cluster 3 (n = 9), by patients with peripheral
42 arthritis. The patients in cluster 1 achieved treatment response less frequently than those
43 in cluster 2 (14% vs. 47%, $p = 0.030$). Refractory cases were more frequent in cluster 1
44 than in cluster 2; however, no significant difference was noted (71% vs. 42%, $p = 0.06$).

45 **Conclusions:** Thrombocytosis could predict the clinical course in patients with PMR.

46 **Keywords:** polymyalgia rheumatica, cluster analysis, prognostic
47 factors, thrombocytosis, peripheral arthritis.

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