Raynaud's Phenomenon and Hand Function in Patients with Rheumatoid Arthritis

To the Editor:

Rheumatoid arthritis (RA) is commonly cited as a cause of secondary Raynaud's phenomenon (RP). Yet there are few studies estimating the prevalence of RP in RA, and those found very different prevalences, ranging from 2.7%[1] to 17.2%[2]. Therefore RP may be no more common in patients with RA than in the general population, in whom reported prevalence also varies but is probably in the order of 4.6%[3] to 19%[4]. Differences in the definition of RP and in the populations studied will contribute to this wide range. Irrespective of whether RP is overrepresented in patients with RA, there is no doubt that a proportion of patients with RA have RP; there are reasons why RP might be more severe in patients with RA: a procoagulant tendency[5], endothelial injury/activation[5], and reduced vasodilation[6] are all thought to occur in RA, and all have been implicated in the pathogenesis of RP[7].

In patients with systemic sclerosis, RP is associated with significant functional disability[8], but the functional influence of RP in patients with RA has not been previously assessed. We assessed the effects of RP on hand function and grip strength in patients with RA.

Patients with RA who were due to attend the rheumatology outpatient clinic over a 6-week period were recruited for study in advance; at their outpatient appointment they were asked whether or not they had RP, defined by a biphasic colour change (including pallor) in response to cold or emotion. Those identified as having RP were asked to complete a Raynaud's Condition Score (scale 0–10)[8]. All patients were asked to complete the Duruöz Hand Index (DHI)[9], grip strength was assessed using a bulb dynamometer, and a tender and swollen joint count was performed. Results for DHI and grip strength, tender and swollen joints, and duration of RA were analyzed by Mann-Whitney U test. Gender was analyzed using Fisher's exact test.

One hundred sixty-five patients were invited to participate, and 108 were included. Of the 57 who did not participate, 19 declined, 21 cancelled or did not attend their appointments, 13 could not be included because of time constraints at the outpatient clinic, 3 had a coexisting connective tissue disease, and one had been contacted in error. Ten (9%) had RP. The mean (range) age of patients with RP (8 women, 2 men) was 59 (36–79) years and age of the remaining 98 patients (76 women, 22 men) was 61 (23–85) years. The mean duration of RA was 14 (5–31) years in the RP group and 16 (0.25–61) years in the non-RP group. Of the 10 patients with RP, only one had had an episode of RP that day, scoring 3 on the Raynaud's Condition Score (all others scored 0). No patient had digital ulcers or pits. The mean number of tender joints was 10.5 and swollen joints 6.9 in the RP group, and 5.8 and 3.3, respectively. in the group without RP. No patient underwent capillaroscopy at the time of the study. None of the 10 patients with RP was receiving vasodilator therapy for RP. No significant differences were found in age ($p = 0.4$), sex ($p = 0.9$), duration of RA ($p = 0.7$), or number of tender ($p = 0.19$) and swollen joints ($p = 0.08$) between the RP and non-RP groups.

There was no evidence of differences in either DHI or grip strength between the RP and non-RP groups (Figure 1). The median DHI (quartiles) in patients with RP was 33 (21–41) and in those without RP 31 (18–46) ($p = 0.84$, 95% CI for median differences –14 to 12). The median (quartiles) grip strength in patients with RP was 3.87 (3.00–5.29) and in those without RP 3.56 (2.35–5.42) ($p = 0.75$, 95% CI for median differences –1.94 to 1.44).

The conclusion from this small pilot study is that hand function, measured by the DHI and by grip strength, was not significantly different between patients with RA with and without RP. DHI results were higher than previously reported in RA (mean = 19)[9], possibly reflecting the longer disease duration of our patients, and were higher also than in a population of patients with systemic sclerosis (mean = 18)[10]. Most of the patients had mild RP, only one patient scoring on the Raynaud's Condition Score. Therefore it is likely that in our study, most patients already had significantly compromised hand function, but that the addition of RP did not have an important influence on this. Although patient numbers were insufficient to accurately assess prevalence, our estimated prevalence of RP in RA of 9% is consistent with previous findings.

Our findings do not suggest that RP is likely to be a major clinical problem in patients with RA. Nonetheless this is an area deserving further research, for example into how the pathophysiologies of the 2 conditions might interrelate. Studies comparing the pathophysiology of rheumatoid-related RP with both primary and systemic sclerosis-related RP would also be of interest.

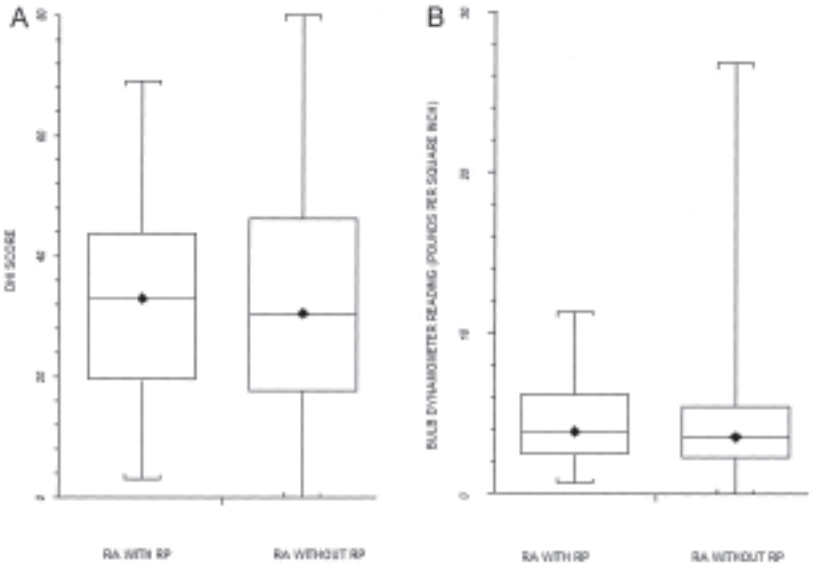

Figure 1. DHI scores (A) and grip strength (B) in patients with RA with (n = 10) and without (n = 98) Raynaud's phenomenon (RP). Lines are medians, boxes show lower and upper quartiles, whiskers minimum and maximum values.

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