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Original Research Article

Effect of yoga therapy on cardiovascular parameters in patients with psoriasis: A randomized control trial — pilot study

Ganesan Dayanidy[1,*], Ananda Balayogi Bhavanani[1], Meena Ramanathan[1], S Srikanth[2]

[1] *Centre for Yoga Therapy, Education and Research, Pillaiyarkuppam, Pondicherry, India*
[2] *Dept. of Dermatology, Mahatma Gandhi Medical College and Research Institute, Pillaiyarkuppam, Puducherry, India*

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ABSTRACT

Aim and Objective: This study was done at the Centre for Yoga Therapy, Education and Research (CYTER) of Sri Balaji Vidyapeeth (SBV) to determine cardiovascular (CV) parameters in patients with psoriasis.

Materials & Methods: Data of 20 patients (12 female, 8 male) with a mean age of 44.40 ± 15.2 y who were referred by Dept. of Dermatology and attended yoga therapy sessions at CYTER was used for analysis. Supervised yoga training was given to the participants who were randomized into the yoga group. Heart rate (HR), systolic and diastolic pressure (SP and DP) was recorded using non-invasive blood pressure (NIBP) apparatus before and after the study period of 12 weeks. CV indices such as Pulse pressure (PP), mean pressure (MP), rate-pressure product (RPP), and double product (DoP) were derived using appropriate formulae.

Results: The inter-group comparison showed significant change ($p<0.05$) in SP. The derived CV indices such as PP, RPP & DoP also showed significant changes. ($p<0.05$) after 12 weeks of Yoga training. The intragroup comparison in the control group showed a significant increase in SP and DP ($p<0.05$).

Conclusion: There is a healthy reduction in SP and derived CV indices following 12 weeks of yoga training. The magnitude of this reduction depends on the pre-existing medical condition and intensity of the disease in each individual. These changes may be attributed to enhanced harmony of cardiac autonomic function as a result of coordinated breath-body work and mind-body relaxation due to yoga resulting in a significant reduction in the perceived stress.

1. Introduction

Psychodermatologic disorder is a condition that involves an interaction between the mind and the skin.[1] Psoriasis, which are not directly connected to mind, but it was precipitated or exacerbated by psychological stress. Psoriasis is a genetically determined immune-mediated inflammatory disease mediated by T-helper 1 (Th1)/Th17 T cells. With a prevalence of 0.44–2.8 percent in India, it commonly affects individuals in their third or fourth decade with males being affected two times more common than females.[2] Psoriasis has greater impact on the quality of life of patients and their families leads to great physical, emotional and social burden. Yoga is the unique combination of isometric muscular contractions, stretching exercises, relaxation techniques, and breathing exercises.[3,4] Numerous studies have been done in the past few decades on psycho physiological and biochemical changes occurring following the practice of yoga.[5–7] Various studies show adjuvant Yoga therapy alleviates stress in normal subjects and patients with different conditions.[8]

2. Materials and Methods

This randomized controlled pilot trial of 12 weeks was undertaken as an interdisciplinary collaborative

* *Corresponding author.*
E-mail address: Dayanidy@gmail.com (G. Dayanidy).

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Table 1: Yoga therapy protocol

Sl. no.	Yogic Technique	Duration (min)
1.	Warm up practices	5
2.	Tala Kriya and Asana	2
3.	Trikonasana	2
4.	Meruasana / Nasarga Mukha Bhastrika	2
5.	Chatuspadasana / Vyagraha Pranayama	3
6.	Pavanmukta series	3
7.	Sethukriya and Asana	3
8.	Nadishuddhi Pranayama	5
9.	Sadanta Pranyama	3
10.	Bhramai Pranyama	3
11.	Kaya kriya	6
12.	Spandha Nishpandha Kriya	3
13.	Pranava Pranyama	10
14.	Shavasana with normal breathing	10
Total Duration		**60 min**

Table 2: Comparison of heart rate (HR), systolic (SP), diastolic pressure (DP), Pulse pressure (PP),mean pressure (MP), rate-pressure product (RPP), and double product (DoP) in psoriasis patients taken before (B) andafter (A) 12 weeks of yoga therapy.

		Control	Yoga	P-value
HR Beats/min	Before	83 ± 16.23	78.4 ± 11.40	0.466
	After	84.3 ± 12.92	76.9 ± 11.68	0.183
SP mmHg	Before	121.64 ± 9.77	120.3 ± 11.23	0.774
	After	126.36 ± 7.74*	113.4 ± 18.35	0.044
DP mmHg	Before	73.18 ± 6.38	75.4 ± 10.1	0.551
	After	77.46 ± 5.39	71.5 ± 12.09	0.155
PP	Before	48.45 ± 6.19	44.9 ± 7.94	0.264
	After	48.91 ± 4.44	41.9 ± 8.13	0.022
MP mmHg	Before	89.33 ± 7.11	93.75 ± 5.91	0.783
	After	90.37 ± 9.79	85.46 ± 13.96	0.087
RPP	Before	101.54 ± 24.25	94.69 ± 18.55	0.479
	After	106.95 ± 19.71	86.87 ± 18.71	0.027
DoP	Before	7454.76 ±1772.23	7108.8±1388.41	0.626
	After	7940.97 ±1495.93	6563.47±1509.72	0.049

Values are given as mean ± SD. *p<0.05 by student's paired t-test for intragroup comparison. actual p values are given for comparison between the groups by student' sun paired t-test

work between the Centre for Yoga Therapy Education and Research (CYTER) of Sri Balaji Vidyapeeth, and the Department of Dermatology of Mahatma Gandhi Medical College & Research Institute (MGMCRI), Puducherry. Institutional Human Ethics Committee, Sri Balaji Vidyapeeth (PG Dissertation/2018/06/01). The study was also registered with CTRI (CTRI/2018/08/015558). Data of 20 patients (12 female, 8 male) with a mean age of 44.40 ± 15.2y who were referred by Dept. of Dermatology and attended yoga therapy sessions at CYTER was used for analysis.

The subjects were randomized into the Yoga and control groups by simple randomization technique. Participants were undergoing appropriate yoga therapy protocols. Supervised yoga training was given an hour a day, twice a week for 12 weeks. Heart rate (HR), systolic pressure (SP), and diastolic pressure (DP) were recorded using non-invasive blood pressure (NIBP) apparatus before and after the study period. The other CV indices such as Pulse pressure (PP), mean pressure (MP), rate-pressure product (RPP), and double product (DoP) were derived using the appropriate formula. The yogic techniques given as yoga training are listed in(Table 1.) The statistical analysis was done using Student's paired T-test for intragroup comparison and Student's unpaired T-test for inter-group comparison between the groups as all the data passed normality testing.

3. Results

The inter-group comparison showed statistically significant changes ($p<0.05$) in Spand derived CV indices such as PP, RPP & DoP (Table 2) after 12 weeks of Yoga training. The intragroup comparison in the control group showed a significant increase in SP and DP ($p<0.05$).

4. Conclusion

There is a healthy reduction in SP and derived CV indices following 12 weeks of yoga training. The magnitude of this reduction depends on the pre-existing medical condition and intensity of the disease in each participant. RPP and DoP are indirect indicators of myocardial Oxygen consumption and load on the heart, thereby signifying a lowering of strain on the heart.[9,10] These changes may be attributed to enhanced harmony of cardiac autonomic function as a result of coordinated breath-body work and mind-body relaxation due to yoga resulting in a significant reduction in the perceived stress,[11] thereby showing desirable improvement in their dermatological health status too.

5. Source of Funding

None.

6. Conflict of Interest

None.

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Author biography

Ganesan Dayanidy, Assistant Professor

Ananda Balayogi Bhavanani, Director & Professor

Meena Ramanathan, Deputy Director & Assistant Professor

S Srikanth, Professor

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