

Combined Spa–Exercise Therapy Is Effective in Patients With Ankylosing Spondylitis: A Randomized Controlled Trial

ASTRID VAN TUBERGEN,¹ ROBERT LANDEWÉ,^{1,2} DÉSIREE VAN DER HEIJDE,^{1,3} ALITA HIDDING,⁴ NICO WOLTER,¹ MAX ASSCHER,⁵ ALBRECHT FALKENBACH,⁶ EKKEHARD GENTH,⁷ HENK GOEI THÈ,² AND SJEFF VAN DER LINDEN¹

Objective. To determine the efficacy of combined spa–exercise therapy in addition to standard treatment with drugs and weekly group physical therapy in patients with ankylosing spondylitis (AS).

Methods. A total of 120 Dutch outpatients with AS were randomly allocated into 3 groups of 40 patients each. Group 1 (mean age 48 ± 10 years; male:female ratio 25:15) was treated in a spa resort in Bad Hofgastein, Austria; group 2 (mean age 49 ± 9 years; male:female ratio 28:12) in a spa resort in Arcen, The Netherlands. The control group (mean age 48 ± 10 years; male:female ratio 34:6) stayed at home and continued their usual drug treatment and weekly group physical therapy during the intervention weeks. Standardized spa–exercise therapy of 3 weeks duration consisted of group physical exercises, walking, correction therapy (lying supine on a bed), hydrotherapy, sports, and visits to either the Gasteiner Heilstollen (Austria) or sauna (Netherlands). After spa–exercise therapy all patients followed weekly group physical therapy for another 37 weeks. Primary outcomes were functional ability, patient's global well-being, pain, and duration of morning stiffness, aggregated in a pooled index of change (PIC).

Results. Analysis of variance showed a statistically significant time–effect ($P < 0.001$) and time-by-treatment interaction ($P = 0.004$), indicating that the 3 groups differed over time with respect to the course of the PIC. Four weeks after start of spa–exercise therapy, the mean difference in PIC between group 1 and controls was 0.49 (95% confidence interval [CI] 0.16–0.82, $P = 0.004$) and between group 2 and controls was 0.46 (95% CI 0.15–0.78, $P = 0.005$). At 16 weeks, the difference between group 1 and controls was 0.63 (95% CI 0.23–1.02, $P = 0.002$) and between group 2 and controls was 0.34 (95% CI -0.05 –0.73; $P = 0.086$). At 28 and 40 weeks, more improvement was found for group 1 compared with controls ($P = 0.012$ and $P = 0.062$, respectively) but not for group 2 compared with controls.

Conclusion. In patients with AS, a 3-week course of combined spa–exercise therapy, in addition to drug treatment and weekly group physical therapy alone, provides beneficial effects. These beneficial effects may last for at least 40 weeks.

KEY WORDS. Randomized clinical trial; Ankylosing spondylitis; Spa therapy; Physical therapy; Hydrotherapy.

INTRODUCTION

Since ancient times spa therapy—bathing in thermal water—has been applied to patients with several rheumatic conditions, including ankylosing spondylitis (AS). Nowa-

days, spa therapy is usually offered in combination with other treatments, such as active exercise therapy, massages, or mud packs. Despite the long history and popu-

Major financial support was obtained from Land Salzburg, Gasteiner Tal Tourismusgesellschaft, Kurzentrum Thermen-tempel, and Gasteiner Heilstollen, Austria. Other sources were ZVN (Zorgvoorzieningen Nederland) N.V., IZA Insurance Company, Dick van Tol B.V. Insurance Company, and Yakult B.V., The Netherlands. In all parts of the study the investigators acted completely independent of the sponsors. Dr. A. Falkenbach is employed as a physician at the Gasteiner Heilstollen.

¹Astrid van Tubergen, MD, Robert Landewé, MD, Désirée van der Heijde, MD, PhD, Nico Wolter, MD, and Sjeff van der Linden, MD, PhD, Department of Medicine, Division of Rheumatology, University Hospital Maastricht, Maastricht, The Netherlands; ²Robert Landewé, MD, and Henk Goei Thè, MD, PhD, Atrium Medical Center, Heerlen, The Netherlands;

³Désirée van der Heijde, MD, PhD, University Center Diepenbeek, Diepenbeek, Belgium; ⁴Alita Hidding, PT, MSc, PhD, Institute for Rehabilitation Research, Hoensbroek, The Netherlands; ⁵Max Asscher, MD, ARBO Unie Oost-Brabant, Eindhoven, The Netherlands; ⁶Albrecht Falkenbach, MD, Gasteiner Heilstollen Hospital and Gastein Research Institute, Bad Gastein, Austria; ⁷Ekkehard Genth, MD, PhD, Rheuma Clinic and Research Institute, Aachen, Germany.

Address correspondence to Astrid van Tubergen, MD, Department of Internal Medicine, Division of Rheumatology, University Hospital Maastricht, PO Box 5800, 6202 AZ Maastricht, The Netherlands. E-mail: avantubergen@yahoo.com.

Submitted for publication October 10, 2000; accepted in revised form June 7, 2001.