



# THE EFFECTS OF SPA AND PHYSICAL THERAPY ON AN INTERMITTENT CLAUDICATION PATIENT WITH ORTHOPEDIC AND NEURALGIC PROBLEMS

(Brief Report)

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*Abstract.* The purpose of our study was to show effects of spa and physical therapy in an Intermittent Claudication (IC) patient with orthopedic and neuralgic problems. 60-year-old male patient had fracture surgery at forearm and both femurs and operation in knee, suffered from right hemiparasy and has leg pain while walking. In doppler examination, atherom plaques in left lower extremity iliac external and femoral artery were observed. Within 12 days of spa and physical therapy program made up of one session a day, spa pool exercises and physical therapy program were applied. Before and after the treatment Pain Free Walking (PFW) and Maximum Walking (MW) distance and time were measured on the straight ground. After 12 sessions PFW distance increased 112.5 % (32m to 68 m) and MW distance increased 164.7 % (102 m to 270 m). At the end of the 4<sup>th</sup> session the night pain was relieved. The spa and physical therapy program applied to the IC patient with orthopedic and neuralgic problems gave successful results and showed that spa therapy can also be applied to such patients in addition to physical therapy.

## 1. Introduction

Intermittent Claudication (IC), the symptom of exercise induced muscle ischemia of peripheral arterial disease, afflicts and limits the activities of a significant number of patients. Exercise commonly leads to increase claudication-free walking distance [1]. In treatment of IC such modalities as massage, Transcutaneous Electrical Nerve Stimulation (TENS) and spa therapy were not commonly used. With such purposes, the results of intense and short-term spa and physical therapy program on an IC patient with orthopedic and neuralgic problems are aimed to be shown.

## 2. Material and Method

### 2.1. The Case

The patient (60 years old male) had fracture surgery at forearm and both femurs and soft tissue operation in knee, suffered from right hemiparasy. According to Rutherford peripheral arterial disease classification was type II 4 (ischemic rest pain) [2]. He has been smoking 1 packet a day for 45 years. Our case was complaining of pain a rising with walk and passing with rest and he came to Kutahya TUTAV Thermal Foundation Cure Center. In doppler examination, atherom plaques in left lower extremity iliac external and femoral artery were observed.

**Key Words:** *Intermittent Claudication (IC), Physical Therapy, Spa Therapy.*

## 2.2. The Spa Water Mineralization and Treatment Program

The spa water used with the purpose of treatment is rich in bicarbonate ion and it contains sodium, calcium, magnesium, ferrum and sulphate. The average temperature of the treatment pool is 30-35 °C. The spa and physical therapy program of our patient was applied for 12 sessions intensively as; Exercises in the spa pool (20-25 min), classical massage and TENS on IC leg and progressive resistance exercises. The treatment of our case lasted average 1.5 – 2 hours each session. Rest breaks (20 min) were given when each treatment modality was applied. Heart rate and blood pressure were measured before, in the middle and after treatment. The medicines our patient was taking were not changed. All data were calculated by SPSS for Windows statistically program. Before and after therapy results were calculated by using wilcoxon paired t test.  $P < 0.05$  was deemed significant.

## 3. Results

There is no statistically difference in heart rate and diastolic blood pressure after treatment ( $P > 0.05$ ). On the other hand a statistically meaningful decrease in the systolic blood pressure was observed ( $p < 0.05$ ) (Table 1).

**Table 1.** Cardiac Results

	Before Treatment	After Treatment	P
Heart Rate, (per/min) 0.05	84.2 ± 4.4	85.5 ± 6.1	p>
SBP, (mmHg)* <b>P&lt;0.05</b>	133.3 ± 12.3	147.5 ± 21.4	
DBP, (mmHg) 0.05	76.4 ± 4.8	76.7 ± 8.9	p>

SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure

\* $P < 0.05$ , Data are listed as mean ± SD

Our patient's Pain-Free Walking Distance (PFWD) increased 112.5 % (from 32 m to 68 m) and Maximum Walking Distance (MWD) increased 164.7 % (from 102 to 270 m) (Table 2 ). At the end of the 4th session it was seen that the night pains waking up our patient from his sleep passed. Our patient's PFWD was 55 meters and MWD was 170 meters after the treatment.

**Table 2.** Walking Results

	Before Treatment sessions)	4 <sup>th</sup> Session*	After Treatment (12 sessions)
PFWT, (sec)	55	95	120
PWT, (sec)	180	300	475
PFWD, (m)	32	40	68
PWD, (m)	102	170	270

PWT: Peak Walking Time, PWD: Peak Walking Distance, PFWT: Pain-Free Walking Time, PFWD: Pain-Free Walking Distance. M: meter, sec: second  
\*Stop awaking night pain.

#### 4. Discussion

Walking ability of the people having atherosclerotic artery disease with their lower extremity because of IC pain as a result of muscle ischemia triggered by exercise got damaged. The purposes of the treatment are to increase the collaterals at vascular system and vasodilatation in IC leg.

Hiatt and et al [3] applied treadmill walking program for 12 weeks and end of treatment a 123% was achieved in maximal walking time (MWT) and 165% in PFW time. Gardner et al [4] meta-analysis in thirty-three English language studies to identify the components of exercise rehabilitation programs that were most effective in improving claudication pain symptoms in patients with peripheral arterial disease. As result of rehabilitation programs PFWD increased 179 % and MWD increased 122 %. Ambrosetti et al [5] studied asses effect of intensive short term training programs. After four weeks PFWD 132 % (from 75 m to 174) and maximum MWD 87 % (from 204 m to 381 m) were increased. Instead of short term training programs our results similar long term training programs. Neurologic and orthopedic problems affected functional capacity and training can be exaggerated treatment results. On the other hand primary complaint of the case was claudication pain. In treatment of IC spa therapy, Tens massage and strength exercises were used for to increase blood flow, pain threshold and vascular vasodilatation. Combine treatment program with spa therapy, was more effective than classical treatment programs in this case and make new treatment option's for IC. Therefore, future studies are required to improvements the treatment of the peripheral arterial disease.

## REFERENCES

- [1] Frank, A., Schmieder and Anthony J., 2001 Comerota. *Am J Cardiol*, 87:3D-13D.
- [2] Rutherford, R.B., Baker, J.D., Ernst, C., Johnstone K.W., Porter, J.M., Ahn, S. and Jones D.N., 1997, Recommended standards for reports dealing with lower extremity ischemia: revised version. *J Vasc Surg*, 26:517-538.
- [3] Hiatt, W.R., Regensteiner, J.G., Hargarten, M.E., Wolfel, E.E. and Brass, E.P., 1990, Benefit of exercise conditioning for patients with peripheral arterial disease. *Circulation*, 81:602-9.
- [4] Gardner, A.W. and Poehlman, E.T., 1995, Exercise rehabilitation programs for the treatment of claudication pain: a meta-analysis. *Jama*, 274:975-80.
- [5] Ambrosetti, M., Salerno, M., Tramarin, R., and Pedretti, R.F., 2002, Efficacy of a short-course intensive rehabilitation program in patients with moderate-to-severe intermittent claudication". *Ital Heart J*, 3:467-72.

## ORTOPEDİK VE NÖROLOJİK PROBLEMİ OLAN BİR INTERMITTANT CLAUDİKASYO HASTASINDA KAPLICA VE FİZİK TEDAVİNİN ETKİLERİ

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### Özet

Çalışmamızın amacı ortopedik ve nörolojik problemi olan bir intermittant claudikasyon (İC) hastasında kaplıca ve fizik tedavinin etkilerini göstermektir. 60 yaşındaki erkek hastanın ortopedik olarak önkolda ve her iki femurda kırık cerrahisi, diz ekleminde yumuşak doku operasyonu yapılmış olan hasta 15 yıl önce sağ hemiparazi geçirmiş ve yürüyüşle birlikte ortaya çıkan bacak ağrısı belirlenmiştir. Renkli Doppler Ultrasonografik incelemesinde sol alt ekstremite iliak eksternal arterle femoral arter bileşkesinin profundal dalında aterom plakları saptanmıştır. Günde bir seans olmak üzere 12 günlük kaplıca ve fizik tedavi programında kaplıca havuzunda su içi egzersizler ve fizik tedavi programı (klasik masaj, tens, progressif rezistif egz) uygulanmıştır. Tedavi öncesi ve sonrasında düz eğimsiz yürüyüş platformunda Ağrısız Yürüme (AY) ve Maksimum Yürüme (MY) mesafesi ve süresi ölçülmüştür. 12 seans sonunda AY mesafesi % 112.5 (32 m'den 68 m) ve MY mesafesi % 164.7 (102m'den 270 m) artmıştır. Dördüncü seans sonunda hastamızdaki uykudan uyandıran gece ağrısının kaybolduğu belirlenmiştir. Kısa sürede elde edilen bu sonuçlar uzun süreli tedavi programları kadar etkili olmuştur. Ortopedik ve nörolojik problemleriyle birlikte bir vaka olan intermittant claudikasyon hastasında uygulanan kaplıca ve fizik tedavi programı başarılı sonuçlar vermiş ve bu tip hastalarda fizik tedaviyle birlikte kaplıca tedavisinin de uygulanabileceğini göstermiştir.

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