

Effect of exercise program on lumbosacral strain in patients on continuous ambulatory peritoneal dialysis

Sir,

In patients on continuous ambulatory peritoneal dialysis (CAPD), a weight of 2 l (2 kg) dialysate in the peritoneal cavity causes low back strain and pain. The lumbosacral strain is assessed by measurement of lumbosacral angle (LSA) radiologically by Ferguson’s technique (normal humans around 30°),^[1] range of motion (ROM) of lumbar spine is by Schober’s test^[2] and lumbosacral discomfort through Visual Analogue Scale (VAS) scoring.

We studied 11 patients (male: female = 8:3), five were diabetic, none had disc prolapse, fracture and infections of lumbosacral spine. The assessment of these parameters were carried out on three occasions in all patients, firstly [Figure 1] when the peritoneal cavity was empty (without fluid), secondly when the peritoneal [Figure 2] cavity was filled with fluid (after infusion of CAPD bag) and thirdly 3 weeks after initiating the exercises as prescribed below. The prescribed exercises were, (a) pelvic tilt in lying, (b) abdominal curl up, (c) single knee to chest flexion with flexion and extension of knee, (d) straight leg raising with ankle dorsiflexion and (e) standing pelvic tilt.^[3] The measurements of LSA, ROM and VAS score were tabulated in Table 1.

We observed by repeated measure analysis of variance statistical technique there was a statistically significant reduction in LSA and ROM of the lumbar spine and VAS score after the exercise program in

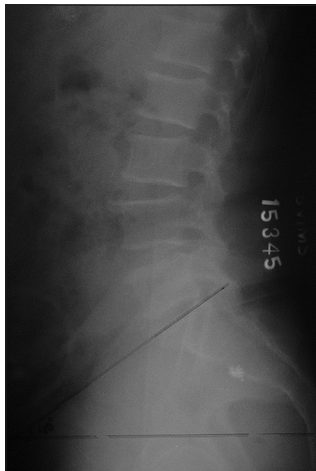


Figure 1: Lumbosacral angle before continuous ambulatory peritoneal dialysis bag infusion

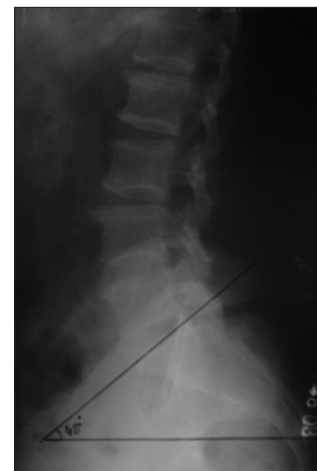


Figure 2: Lumbosacral angle after continuous ambulatory peritoneal dialysis bag infusion

Table 1: The statistically significant improvement of LSA, ROM of lumbar spine and VAS score after initiation of the exercise program

Descriptive statistics	LSA		ROM of lumbar spine		VAS score				
	Mean	SD	Mean	SD	Minimum	Maximum	Percentiles		
							20 th	50 th	75 th
Lumbosacral angle when peritoneal cavity empty	39.09	3.727	8.182	2.3051	1	3	1.00	1.00	2.00
Lumbosacral angle after CAPD bag infusion	46.36	5.278	6.82	2.028	3	7	4.00	5.00	6.00
Lumbosacral angle after 3 weeks of exercises program	45.91	5.338	7.64	2.203	2	4	2.00	3.00	4.00
<i>P value</i>	34.180 (0.000*)		10.035 (0.000*)		20.537 (0.000*)				

LSA: Lumbosacral angle, ROM: Range of motion, VAS: Visual Analogue Scale, SD: Standard deviation, CAPD: Continuous ambulatory peritoneal dialysis, *Level of significance

comparison with the value before the initiation of exercise program.

In conclusion, we suggest that an effective exercise program applied under physiotherapy specialists' guidance improves musculoskeletal strength of lumbosacral region to mitigate lumbosacral strain.

Acknowledgment

We thank to Dr. Vishnu Vardhan Ph.D. (Statistics) for his help in statistical data analysis of our study.

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Quick Response Code:	Website: www.indianjephrol.org
	DOI: 10.4103/0971-4065.133787