

Super long term dialysis patients for over 40 years suffer from severe physical disability due to osteo-articular complications.

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Background

Maintenance dialysis was first introduced in Japan about 48 years ago. In Japan, low mortality in maintenance dialysis and a few chances of renal transplantation involuntarily provided the increase of long term dialysis patients.

Physical performance and ADL were severely impaired in these patients. They suffer from multiple bone and joint complications for their long dialysis period. **The aim of this study is to evaluate the physical performance and ADL of super-long-term dialysis patients.**

Subjects

10 patients who received maintenance dialysis for more than 40 years in Shinrakuen Hospital and Ariake clinic were examined.

	gender	age starting dialysis	age at present	dialysis duration	Cause of nephropathy
1	male	28.6	73.3	44.7	CGN
2	female	42.2	83.6	41.4	Nephrosclerosis
3	male	32.7	73.2	40.5	CGN
4	male	25.1	66.1	40.9	CGN
5	male	22.1	65.7	43.6	CGN
6	male	24.7	69.3	44.6	CGN
7	male	34.6	76.9	42.3	CGN
8	male	22.0	66.6	44.7	CGN
9	male	28.6	74.1	45.5	CGN
10	female	24.1	66.8	42.7	Nephrosclerosis
AVERAGE		26.3	70.4	44.1	

80% of super-long term dialysis patients are glomerulonephritis
No diabetic patients were found.
They were introduced to dialysis mainly in their third decade

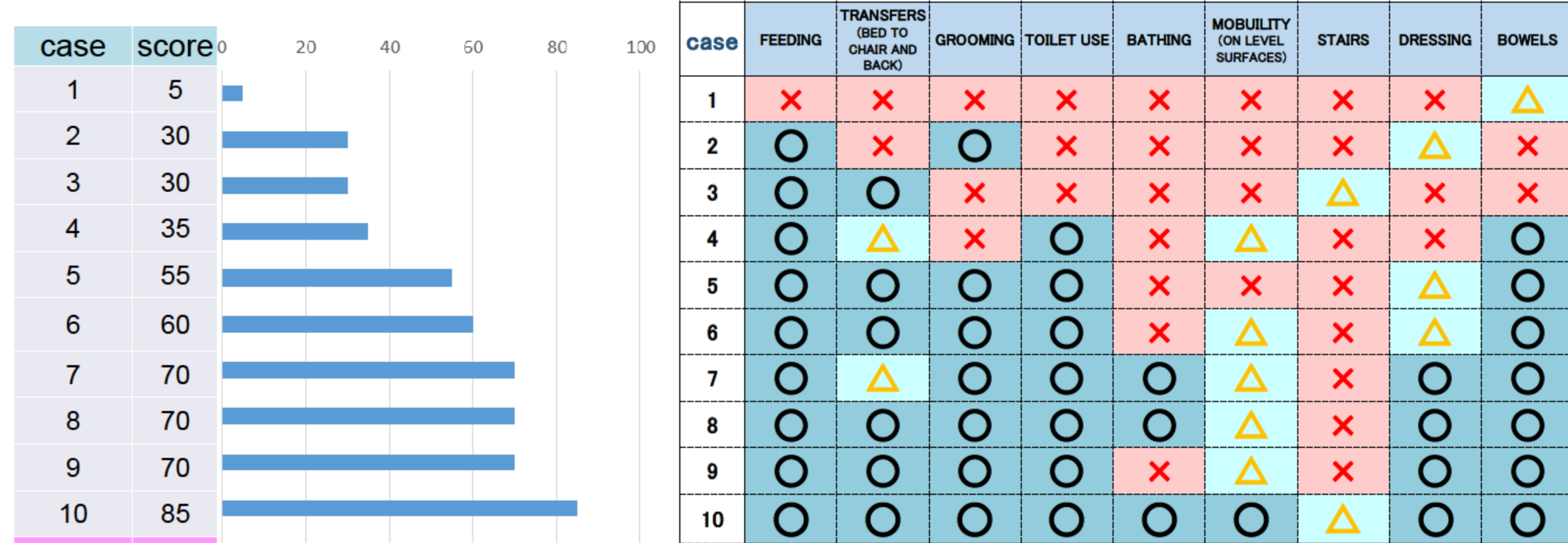
Daily Lifestyle and transportation

case	transportation	come to hospital by	Living with
1	Wheel chair	(long time admission)	alone
2	Wheel chair	transport support car	alone
3	Wheel chair	family car	spouse
4	Wheel chair	family car	spouse
5	Wheel chair	transport support car	alone
6	Wheel chair	(long time admission)	spouse/child
7	Wheel chair	transport support car	spouse
8	Wheel chair	transport support car	spouse(on long term dialysis)
9	Wheel chair	(long time admission)	spouse(on long term dialysis)
10	walk with stick	taxi	spouse

Severe disability on ADL
Poor support ability from family members
Many of patients need for social support for life

Result

Barthel index (assessment of ADL)



reference:70-74 years old Japanese adult data from Health and Welfare Bureau for the Elderly, Ministry of Health, Labor and Welfare(2010)

case	FEEDING	TRANSFERS (BED TO CHAIR AND BACK)	GROOMING	TOILET USE	BATHING	MOBILITY (ON LEVEL SURFACES)	STAIRS	DRESSING	BOWELS
1	X	X	X	X	X	X	X	X	△
2	○	X	○	X	X	X	X	△	X
3	○	○	X	X	X	X	△	X	X
4	○	△	X	○	X	△	X	X	○
5	○	○	○	○	X	X	X	△	○
6	○	○	○	○	X	△	X	△	○
7	○	△	○	○	○	△	X	○	○
8	○	○	○	○	○	△	X	○	○
9	○	○	○	○	X	△	X	○	○
10	○	○	○	○	○	○	△	○	○

○ possible
△ possible with assistance
X impossible

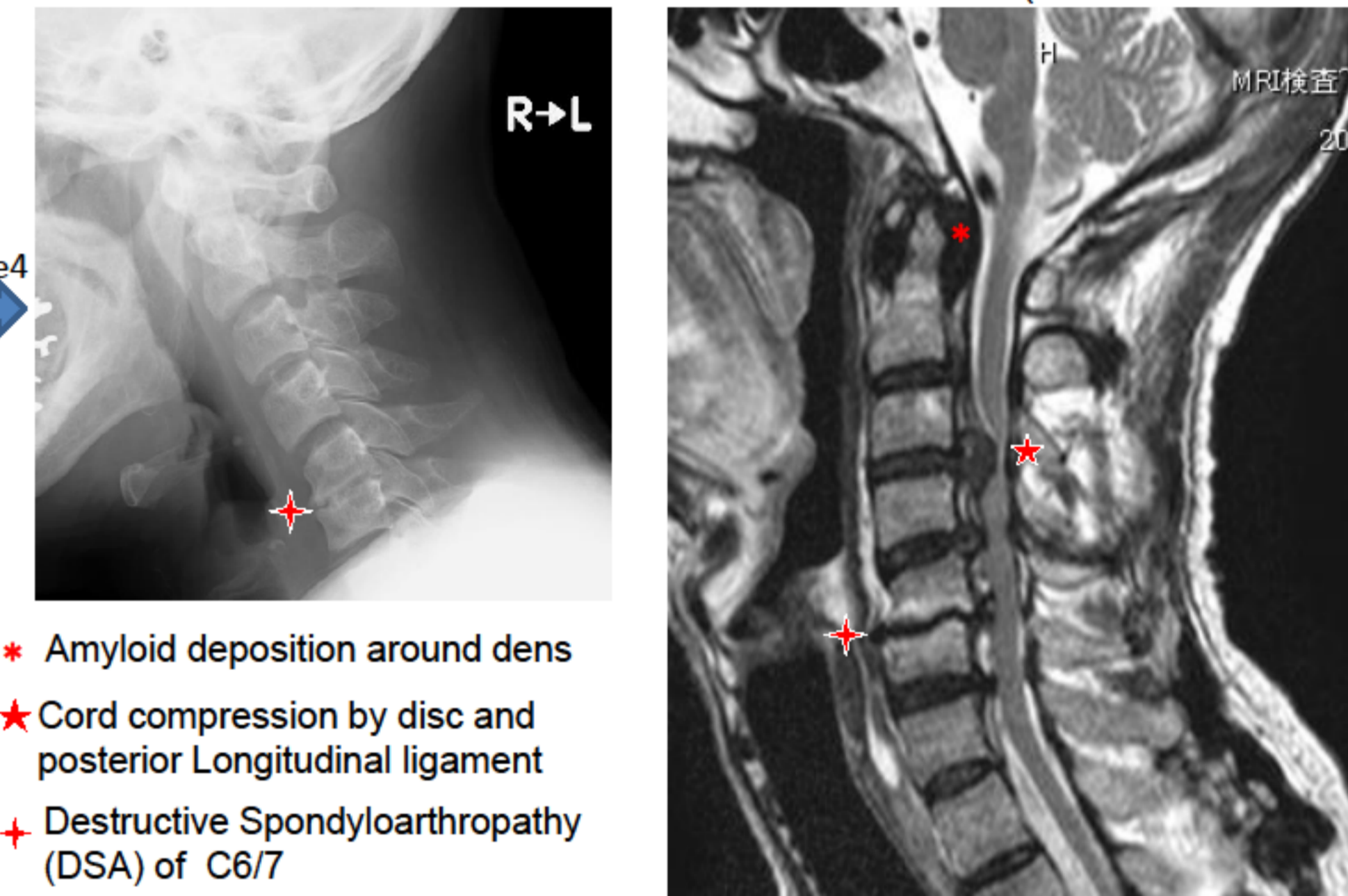
Complications, bone and joint diseases

case	Cervical Vertebra			Lumbar Vertebra			Hip Joint
	DSA*	Canal stenosis	Surgery	DSA	Canal stenosis	Surgery	Surgery
1	○	○	2 ¹⁾²⁾	X	○	0	0
2	MRI not evaluated	0	0	MRI not evaluated	0	0	1 ³⁾
3	MRI not evaluated	0	0	MRI not evaluated	0	0	0
4	○	○	0	○	○	0	0
5	○	○	2 ⁴⁾⁵⁾	○	○	0	0
6	○	○	0	MRI not evaluated	0	0	0
7	○	○	1 ⁶⁾	X	○	0	0
8	X	○	1 ⁷⁾	○	○	1 ⁸⁾	0
9	MRI not evaluated	0	0	X	○	0	0
10	○	○	0	X	X	0	2 ⁹⁾¹⁰⁾

1) laminectomy
2) atlantoaxial fixation
3) artificial head replacement (neck fracture)
4) laminectomy
5) spinal fusion
6) anterior fixation
7) vertebral canal enlarging
8) laminectomy
9) femoral osteotomy (hip OA)
10) artificial head replacement(necrosis of the head)

*DSA; Destructive Spondyloarthropathy

DSA and spinal canal stenosis of the Neck (HD 39Y case 4)



Finger contraction



Surgery for Carpal Tunnel Syndrome (CTS)

case	CTS (R)	CTS (L)
1	1	1
2	0	0
3	1	0
4	2	0
5	1	2
6	3	3
7	2	2
8	1	1
9	2	1
10	1	1

Reduced ROM in PIPs and DIPs
Unable to grasp, pinch, hold things

Skills for compensating impaired ADL

Lower extremities

Transport from bed to wheelchair
Transport without stepping, just turning around and sitting on wheelchair
Walking some steps to wheelchair, with holding on railings of bed

Upper extremities

Feeding
Using chopsticks in right hand and a spoon in left hand simultaneously
Eating porridge or rice balls because chopsticks are unable to be used
Holding a spoon and reaching mouth to it, with dishes kept on the table

Dressing
Wearing big-sized pajamas all day
Taking almost an hour to change clothes
Choice of buttonless and beltless wear
Putting trousers up to waste with other's assistance

Grooming
Moving face to and fro with water-dipped hands suspended
Toothbrush and shaver are stuffed into contracted fingers

Vascular complications

case	Ischemic/valvular heart disease	PCI	brain hemorrhage/infarction	ASO	PTA to lower extremities
1	X	X	X	○	X
2	X	○	X	X	X
3	○	X	X	○	X
4	○	○	X	○	○
5	○	X	X	○	X
6	X	X	X	○	○
7	○	X	X	○	X
8	○	○	X	○	X
9	○	X	X	X	X
10	○	○	X	X	X

No patients with brain stroke achieved 40-year-survival

Summary of Results

ADL was severely disturbed comparing to same age group.
Joints of both upper and lower extremities were affected.

9 out of 10 need wheel chair to transport.
Only 1 can come to hospital by himself, using stick and riding taxi.
90% could eat by oneself, 70% could wash their face, and 40% could change clothes by oneself.

DSA of cervical and lumbar lesion and spinal canal stenosis as well as CTS were commonly observed.
Beta 2 microglobulin amyloidosis presumed to be mainly responsible for their disabilities.

Conclusion

Over 40-year-survival on dialysis was achieved, although they suffered from severe bone and joint complications and their ADL was seriously disturbed. Dialysis related amyloidosis is suggested to be a major cause of their disabilities.

Super-long-term dialysis is not likely to become more common in future, as young dialysis patients are decreasing in number and life-threatening vascular complications become more frequent in these days. Therefore it is indispensable to put these patients on record at current occasion.

Acknowledgements

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