CHANGES OF HEALTH RELATED QUALITY OF LIFE 36 MONTHS AFTER VERTEBRAL AND DISTAL FOREARM FRACTURE – RESULTS FROM ICUROS IN LITHUANIA

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Introduction

The incidence of osteoporotic fractures has been rising in the last decade because of increasing age of the population. Vertebral and distal forearm fractures occupy a dominant position in osteoporosis. The spine is a classic site of fragility fracture and vertebral fractures are associated with low bone mineral density [1]. Although these fractures often are asymptomatic and may heal undetected, multiple fractures cause severe pain and often become responsible for considerable disability [2]. Distal radius fractures account for up to 20% of all fractures. Health related quality of life encompasses patients subjective evaluation of their well-being in at least the physical, psychological, and social domains [3]. Particular effects are on self-care, mobility and ambulation [4].

Objective

To evaluate the changes of health related quality of life (HRQoL) 36 months after vertebral or forearm fracture in patients from Lithuania.

Material and Methods

Patients aged 50 years and older, with vertebral fracture (VFx) or distal forearm fracture (FFx) enrolled and observed for 18 months in the International Costs and Utilities Related to Osteoporotic fractures Study (ICUROS) in Lithuania.

The diagnosis of recent vertebral or distal forearm fracture was confirmed by radiographic images. After informed consent was obtained, baseline data were collected including age, gender, level of education, income level, and living arrangements before fracture, work status, date and type of fracture. Data on HRQoL before fracture were collected during the first interview at the hospital or outpatient department where patients came, within two weeks after fracture. Then, in ICUROS, patients were interviewed by phone 4, 12, and 18 months after the fracture event: current health status and the fracture related resource use since the last interview was documented. In this study, patients were interviewed additionally 24 and 36 months after the fracture using the same questionnaires.

The EQ-5D questionnaire was used to evaluate daily living activities, mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. To be eligible for inclusion in the study, patients had to be diagnosed with a low-energy-induced fracture and be at least 50 years old. Exclusion criteria were: other fractures or conditions, which could significantly change the health status. Lithuanian Bioethics committee approved the study protocol, and written informed consent was obtained from all participants.

Multivariate regression analysis was performed to evaluate the impact of gender, age, education and income to EQ-5D index. Statistical analysis was performed using SPSS software version 18.0 for Windows.

Results

In total, 256 persons were included in this study: 65 with VFx (51 women and 14 men) and 191 with FFx (179 women and 12 men). Results of the evaluation at 36-month after the fracture showed that the patients with FFx had better HRQoL compared to the VFx group, although the quality of life did not achieve the pre-fracture level in either group. Pain/discomfort and usual activities were mostly affected dimensions of EQ-5D, in both fracture sites. Before VFx, 85.6% of patients had no back pain, compared to 13.9% 36 months after fracture (p<0.001).

Table 1. Health related quality of life dimensions by fracture type group, in percent's

Dimension	Time	Vertebral fracture,%			Distal forearm fracture, %		
		No problems	Moderate problems	Severe problems	No problems	Moderate problems	Severe problems
Mobility	Before fracture	85.6	14.4	–	84.9	15.1	–
	14 days	37.8	41.1	21.1	60.2	38.6	1.2
	18 month	54.3	43.2	2.5	76.7	23.3	–
	24 month	43.3	52.2	4.5	67.5	31.5	1
	36 month	44.6	50.8	4.6	67.6	31.4	1
Self care	Before fracture	95.6	4.4	–	97.6	2.4	–
	14 days	26.6	47.8	25.6	2	85.3	12.7
	18 month	53.1	42	4.9	91.7	8.3	–
	24 month	49.2	43.3	7.5	80.6	17.3	2.1
	36 month	49.2	43.1	7.7	80.6	17.3	2.1
Usual activities	Before fracture	82.2	16.7	1.1	86.1	13.9	–
	14 days	8.9	53.3	37.8	1.6	55.8	42.6
	18 month	45.7	43.2	11.1	67.9	30.8	1.3
	24 month	28.4	61.2	10.4	76.4	21.5	2.1
	36 month	33.8	55.4	10.8	77	21.4	1.6
Pain/ Discomfort	Before fracture	85.6	14.4	–	90	10	–
	14 days	1.2	44.4	54.4	1.2	55.8	43
	18 month	23.4	63	13.6	67.1	31.6	1.3
	24 month	11.9	70.2	17.9	60.7	36.6	2.6
	36 month	13.9	64.6	21.5	61.3	36.1	2.6
Anxiety Depression	Before fracture	81.1	17.8	1.1	85.3	14.7	–
	14 days	32.2	30	37.8	2.4	40.2	57.4
	18 month	61.7	29.7	8.6	69.2	28.7	2.1
	24 month	35.8	49.3	14.9	72.8	24.1	3.1
	36 month	43.1	46.1	10.8	73.3	24.6	21

In patients with VFx, anxiety was reported more frequently 36 months after than before fracture (by 57% and 18.9% of subjects, respectively; p<0.001). At 36 months after FFx, the mobility decreased to 67.5%, and 77% of subjects were able to look after themselves without problems. In patients with FFx, higher age and lower educational level were significantly associated with lower EQ-5D index scores. Table 1 summarizes the health related quality of life dimensions by fracture type.

The EQ-5D index was estimated in different age groups in all survey periods. The purpose of this evaluation was to determine the EQ-5D index considering the influence of age. The data are summarized in the table 2.

Table 2. The EQ-5D index estimate with considering the age

Quality of life evaluation	Age groups, years					
	Vertebral fracture			Distal forearm fracture		
	50–59 (n=23)	60–74 (n=27)	75 and older (n=15)	50–59 (n=39)	60–74 (n=109)	75 and older (n=43)
Before fracture	0.976	0.971	0.82	0.951	0.976	0.948
14 days after fracture	0.433*	0.552*	0.207*	0.44*	0.434*	0.351*
18 months after fracture	0.741*	0.727*	0.633*	0.912*	0.911*	0.88*
24 months after fracture	0.711*	0.649*	0.414*	0.876*	0.859*	0.822*
36 months after fracture	0.717*	0.66*	0.448*	0.882*	0.863*	0.824*

*p<0,05; * – statistically significant difference from the before fracture value (repeated ANOVA measurements in separate age groups).

EQ-5D index may be monitored in time with considering the influence of age. Patients aged 50-59 years evaluate their quality of life higher than other age groups.

Conclusion

Health related quality of life did not achieve the pre-fracture level 36 months after a vertebral or a distal forearm fracture.

References

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