

EFFICACY OF HIP PROTECTORS IN DECREASING THE RISK OF HIP FRACTURES IN ELDERLY PATIENTS IN DEMENTIA SPECIALIZED UNITS



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BACKGROUND & PURPOSE:

The combined age-related impact of falls, osteoporosis and dementia may explain the alarming increase in the incidence of hip fractures in the elderly, particularly in patients with dementia. Hip fractures represent a major, rapidly increasing, global medical, nursing, economic and social problem. Hip protectors (HP) are supposed to decrease the risk of hip fractures as a result of falls. We evaluated the efficacy of HP in preventing hip fractures, in patients with dementia in dementia specialized departments (DSD).

PATIENTS & METHODS:

The 4 DSD at the Shoam Geriatric Medical Center in Israel contain 90 - 115 physically independent patients with dementia. Since March 2001, all DSD inter-disciplinary team members have undergone a mandatory educational program assimilating knowledge on the severe outcomes of hip fractures and ways of improving physical, behavioral & environmental means for preventing falls. The teams have begun to monitor falls in all patients; each patient with a "Fall" is immediately being checked by a RN and by a physician, and all details recorded. Since January 2004, we have recommended the use of HP to each family/guardian of all patients in these departments. We used the Hip Saver® - Nursing home type, that contains a firm, elastic, mechanically protective layer worn over the trochanters, thus reducing the intensity of damage resulting from direct blows. It is worn over the underwear, quite resistant to wear and tear in the DSD washing machines. For each patient, two sets of Hip Savers are personally adjusted after measurement, choosing one of six sizes. Each set is worn for two days while the other is cleaned. The study group was defined as patients who put on regularly HP, for at least 3 months. The control group included patients treated by the same DSD teams, who were not using HP, either before HP had been introduced or after Jan. 2004, due to guardian's or persistent patient's refusal (bad compliance). Patients who were expected to or actually became dependent or died in less than 6 months, were excluded from the final analysis, as well as patients with follow up of less than three months.



STATISTICAL ASSESSMENT:

The main objective was to compare the number of fractures (dependent variable) per falls (independent variable), in patients wearing/not wearing HP. Chi Square test was used to check relations between two dichotomous variables, independent T-test to check differences for continuous variables (age); Mann-Whitney test to check differences in the rate of falls between groups.

The rate of Hip fractures / Falls, with and without hip protectors

	HIP PROTECTOR		HIP FRACTURES		TOTAL FALLS
	NO	FALLS	NO	YES	
NO	FALLS	309	14	323	
	%	95.7%	4.3%*	100%	
YES	FALLS	258	2	260	
	%	99.2%	0.8%*	100%	
TOTAL	FALLS	567	16	583	
	%	97.3%	2.7%	100%	

* p=0.007, chi square test, hip fracture risk reduction - 5.64

RESULTS:

Medical records of 228 patients (152 women, 76 men) who have been hospitalized at our DSD between March 2001 and Oct. 2006, were evaluated. 149 (65%) had at least one fall during hospitalization. At the beginning of 2004, compliance to wear HP varied in different departments (range 56 - 80%). With time, the increase in teams' motivation resulted in an increased patient's compliance reaching 70 - 80% in all DSD. 206 patients fulfilled our rigorous inclusion/exclusion criteria: 106 patients were wearing HP for a total period of 1905 months (study group) 100 patients were actually never using HP; together with the accumulating months of patients of the study group who were without HP before Jan. 2004, the number of patients' months without HP reached 3136 months (the control group). The study and control groups were comparable regarding age (82.8±9.6 Vs 81.4±9.6, respectively) female/male ratio (71/35 Vs. 69/31) and main comorbidities (previous stroke, Parkinson's disease, epilepsy, atrial fibrillation, arrhythmia, ischemic heart disease and acute MI, congestive heart failure, hypertension, diabetes mellitus, COPD, renal failure, blindness, deafness, hypothyroidism, schizophrenia and previous hip fractures. No significant difference was found between the groups in the incidence of anemia, hypoalbuminemia, B12 & folic acid deficiency, and in the rate of main medications used (anti hypertensives, diuretics, nitrates, anti depressive, anti parkinsonian and antipsychotic drugs). The rate of falls was comparable in those wearing/not wearing HP. However, in those without HP there were 324 falls resulting in 14 hip fractures, and in those wearing HP - 269 falls resulting in two hip fracture (4.3% Vs. 0.7% respectively, p=0.007,). HP resulted in a 5.64 fold reduction in the risk of HF, NNT = 28.

CONCLUSIONS:

Hip protectors significantly decrease the risk of hip fractures as a result of falls, in patients hospitalized in dementia specialized departments. Wearing Hip protectors to patients in this setting is recommended; Permanent use of hip protectors should be considered in independent elderly people particularly with dementia, in the community as well. The clinical, social and economic benefits of hip protectors, are substantial.