

Product-related injuries in elderly persons – facts for prevention

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1. Background

Injuries caused by accidents constitute a major health risk in elderly persons. However, almost no population-based investigations have been conducted in this area in the German-speaking countries so far (Richter et al. 2002). In order to improve the statistical basis for estimating the number of injuries across all age groups, the Public Health Institute of Brandenburg has been developing a hospital-related injury recording system according to the standards of the EU Injury Data Base (IDB) since 2007, in co-operation with Carl Thiem Hospital in Cottbus, Germany. Thus for the first time a tool for the epidemiologic assessment of injuries has become available in Germany, which allows differentiating between sociodemographic characteristics, place of occurrence, mechanism, and product involvement in injuries.

2. Method

Carl Thiem Hospital in the German city of Cottbus is the only hospital to serve a catchment area of about 150,000 inhabitants located in the south of the Federal Land of Brandenburg. All inpatients admitted with injuries are recorded daily and all outpatients on one day of the week (24 hours) according to the IDB standard (Coding Manual version 1.1., 2005). The data are then transmitted to the Public Health Institute of Brandenburg in an anonymised form. This institute acts as data administrator of IDB for Germany and is responsible for the quality control and epidemiologic evaluation of the transmitted data. This is done using the official German Hospital Diagnosis Statistics according to patients' place of residence, i. e. the share of inpatient sample cases in all hospital patients living in the catchment area according to ICD10 S00-T98 (except T80-89) yields the grossing-up factor for the number of inpatient and outpatient sample cases per year. The 12 month prevalence was calculated on the basis of the average population of the catchment area (2007).

3. Results

Within a two-year period beginning 2007 and ending 2008 a total of 2149 injured patients at the age of 65 years and older received inpatient or outpatient treatment (total number of injured patients: 9621). The injury rate rose sharply in persons at the age of 80 years and older and peaked at 47.5 per 1000 inpatients in this age group.

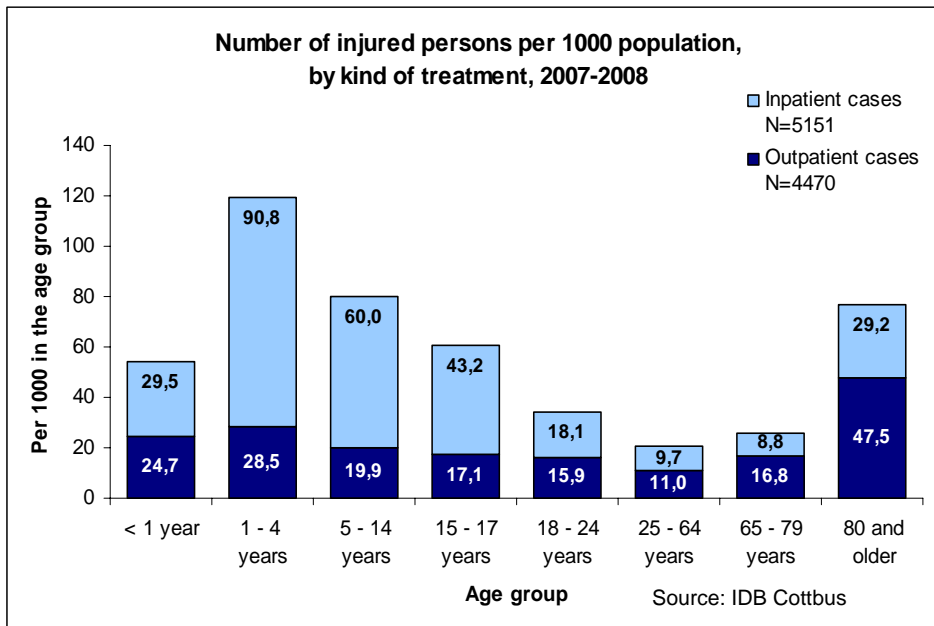


Fig. 1: Number of injured persons per 1000 population, by kind of treatment (inpatients vs. outpatients – source: IDB Cottbus, 2007-08)

A breakdown of the numbers of injuries showed that 98 % of injuries in elderly people resulted from accidents. Injuries due to violence or self-harm were only reported in isolated cases. Fall accidents accounted for 93 % of accidents in persons at the age of 80 years and older and occurred more than three times more frequently in old people (80 years and older) than in the age group from 65 to less than 80 years (see figure 2).

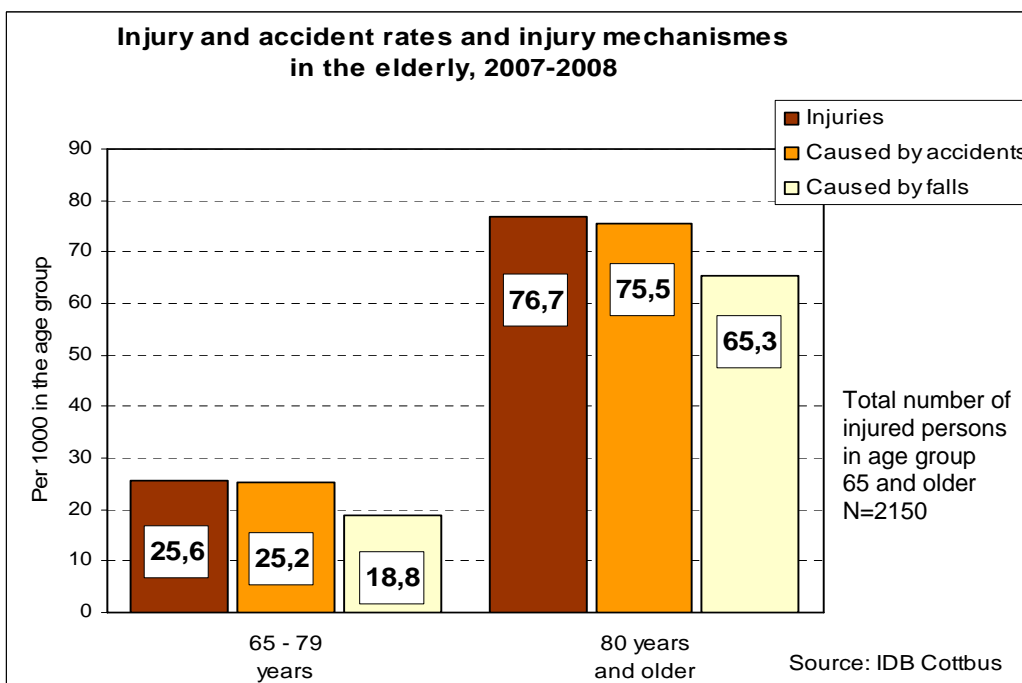


Fig. 2: Injury rates in the elderly by age group: total number of injuries, accident-related injuries, and fall accident mechanism (source: IDB Cottbus, 2007-2008)

With increasing age places of occurrence shifted towards the interior of buildings (see figure 3). Among persons aged 65 to less than 80 years one fall accident out of five causing physical injury occurred in road traffic. In contrast, this proportion diminished among old people (80 years and older), whereas the share of falls occurring indoors increased by 25 percentage points in this age group.

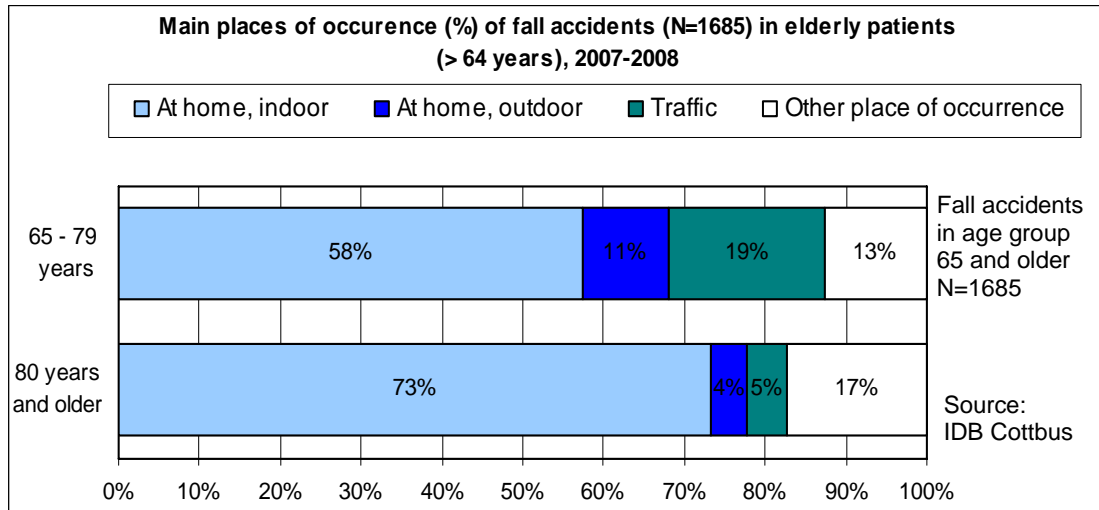


Fig. 3: Main places of occurrence (%) of fall accidents in elderly and old patients (source: IDB Cottbus, 2007-2008)

A total of 192 injury cases among persons aged 65 to less than 80 years and 142 injury cases among people at the age of 80 years and older were recorded in 2008 in the area of investigation (i. e. the city of Cottbus) and listed by product involvement (see table 1). The analysis shows significant changes in product involvement with increasing age.

In terms of causes of injury, individual factors proved more relevant than external factors (i. e. objects) among elderly patients with injuries than in younger patients with injuries (aged 25-64 years). Among old patients (80 years and older) almost one in two fall accidents was caused by the affected person itself, whereas this was the case in only one out of five persons aged 25 to less than 65 years.

In the age group of 65 to less than 80 years the bicycle turned out to be the most frequent injury-causing product (7 % of injuries by accidents).

Indoor areas and particularly flooring, stairs, steps and beds ranked among the most frequent safety hazards in elderly persons with injuries. Among old people accidents leading to injuries were most frequently triggered by beds and accessory components as well as by flooring covering or floor surfaces (rugs, mats).

Accidents involving products / persons	65 to 79 years			80 and older		
	Number	% *	Rank	Number	% *	Rank
The person itself	81	42%	1	66	46%	1
Bicycle	13	7%	2			
Motor vehicle	8	4%	3			
Stairs, steps	7	4%	4	3	2%	5
Rugs, mats, carpet runners	7	4%	4	5	4%	3
Uneven surface	6	3%	5	5	4%	3
Floor from tiles, bricks, concrete	5	3%	6	3	2%	5
Carpets	5	3%	6	4	3%	4
Alcohol consumption	3	2%	7			
Bed, sleeping area or accessories	3	2%	7	18	13%	2
Wheelchair				1	1%	6
Ice				1	1%	6
Other product not determined more nearly	35	18%		30	21%	
Total	192	100%		142	100%	

* Percentage of accidents involving persons / objects / substances

Tab. 1: Accidents/injuries in the elderly: objects/substances (leading to injuries) by age groups (source: IDB Cottbus, 2008)

4. Conclusions

In addition to the German Hospital Diagnosis Statistics which, as an official census, generates data on inpatients, the Injury Data Base yields information on injured inpatients and outpatients as well as on the circumstances of physical injuries.

Data analyses by Carl Thiem Hospital in Cottbus, Germany, have shown that fall accidents occurring in the domestic area rank among the most frequent mechanisms of injury in the elderly population. Both person- and product-related factors were identified as triggers of fall accidents among old people. Hence effective accident prevention requires both an individual risk assessment and individual counselling in the home setting in order to eliminate safety hazards.

References

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