

TRAFFIC INJURIES TO ELDERLY PERSONS

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The old make up a special group in the traffic, in as much as they differ from the younger population in several respects.

- 1) Other patterns of transport because of different errands along with reduced possibilities of using individual car transportation.
- 2) Poorer perception.
- 3) Slower reaction in danger situations.
- 4) Greater fragility.
- 5) Other psychological reactions on preventive measures and other contact ways in preventive efforts.

METHOD

With the purpose of elucidating some of the characteristics of the elderly's accidents compared to children and younger people's accidents we have gone through the material, which has been collected by the Accident Analysis Group at the Odense University Hospital in the four year period of April 1st, 1972 to April 1st, 1976. From this material we selected the age group 65-99 years and for comparison the groups 7-14 years and 25-30 years inclusively. The methodology of material collection has been described earlier (1, 2). The total material of traffic accidents comprises 17.000 patients by January 1st, 1977. Through the hospital administration information has been gathered as to the population stock and its age distribution within the hospital's area of admission. With regard to traffic accidents this area can be described with a fairly good approximation. The population figures have been used as basis for calculation of casualty incidence and prevalence. Within the age group a selection has been made according to the below mentioned variables:

Victim's type of transport versus counterpart.

Month of year, day of week, hour of day.

Place of accident.
 Location of lesion.
 Severity of lesion.

RESULTS

Table I

	Age: 7-14	25-30	65-99
Total number of accidents in the 4-year period	1778	782	771
Population	53.735	19.450	30.800
Incidence/10.000/year	82,7	100,5	62,5

Table I shows the number of persons injured in the four year period. The number of residents in each group in the hospital's area of admission is the only accessible term for the population at risk, in as much as the number of road users through the area and their age distribution is unknown. Far the largest number of the hospitals casualties are residents of the area, and it must be permitted to anticipate, that the few non-residents who are registered in the material will be compensated by a corresponding number of persons living in the area but injured and treated outside the same. Patients primarily treated in other hospitals are not included in the survey.

TYPE OF CONFLICTS

Figure I gives a comparison between elderly and younger people with regard to type of confrontation. In the designations weak/weak, weak/strong, strong/weak, strong/strong the first word indicates the victim's role and the second word the type of counterpart. Weak is synonymous to unprotected parties except motorcyclists who are registered as weak when in the victims role, but as strong counterparts to unprotected opponents. It is clearly seen, that there is a relative overrepre-

sentation of weak/strong confrontations for elderly people. 2/3 of the elderly people's casualties occur in unprotected situations, while younger people only suffer about 1/3 of their casualties in this situation.

DAILY RHYTHM OF ACCIDENTS

Figure II shows the distribution over the day of elderly people's casualties compared to those of younger people. There is a more pronounced late afternoon peak in the group of elderly people, which on the other hand lack the morning rush hour peak as well as the night accidents seen in the younger age groups. (The Y-axis in the figure shows the number of casualties, which have actually occurred within the respective hour of day during the 4-year period investigated).

Figure III is a break down of the figures in figure II into single accidents (in unprotected and protected situations as well) and weak/strong confrontations stated for elderly and younger persons respectively. The curve for elderly person's unprotected confrontations with stronger parties resembles the curve found by Stina Sandels for pre-school children (5). There is no definite reflection of the afternoon rush hour in the motorized traffic as we found it in children and younger persons in an earlier investigation (6). The low accident rate at one and two p.m. is presumably due to lesser exposition at lunch time, although it is not found in the distribution of single accidents. Comparing the pattern of the elderly to that of the younger group, the most conspicuous difference is the concentration of the older people's casualties to the hours of daylight. The distribution on day of week and month of year of the accidents has been registered. In both the elderly and the grown up group there is an increase during the week to a top on Friday. No variation in the distribution on month or time of year is disclosed in any of the groups.

TOPOGRAPHY OF ACCIDENTS

By means of a special program the casualties in school children (7 - 14 years incl.), young people (25 - 30 years incl.) and elderly people (65 - 99 years incl.) were referred to the road on which they had occurred during the four year period. Those roads on which ten or more casualties had occurred in each individual age group were selected and compared between the age groups. There is a considerable overlapping of the accident loaded roads between the age groups, but the accidents of the elderly showed considerably more tendency to concentration on fewer roads, while school children's accidents were more dispersed over the area. 817 school children accidents occurred on 309 roads, while 577 elderly accidents took place on 140 roads. The accident loaded roads could all be characterized as major or middle size

radial roads in urban areas with a combination of residential areas and shops.

LESIONS

Figure IV shows the distribution of lesions with regard to severity. The elderly persons are again compared to the group of 25 - 30 years old. The method of severity prognostication with regard to inability is described earlier (3) by the Odense Group. Casualties (in per cent) means the number of patients with a given lesion related to all patients in the age group.

The figure shows more fatalities and a much more severe level of prognosticated inability with regard to head, trunk and leg lesions in the elderly persons.

Figure V shows the distribution of fractures in those patients who had fractures. It shows, that elderly persons had almost two fractures on an average, while most of the younger persons had one fracture only. Casualties in percent means the percentage of patients in the age group who had fractures in the respective region. The figure indicates that the elderly are almost twice as fragile as the younger persons in all regions.

DISCUSSION

The analysis has shown, that traffic accidents of the elderly mainly take place during day hours. 2/3 of the injuries are inflicted in unprotected situations. The lesions of the elderly are more serious than those of the younger persons. When we look at patients with fractures it appears, that the elderly are subject to almost twice as many fractures as are the younger persons. This fragility does not seem to be localized to any specific region but can be located in the arms, the legs, the head and in the bones of the body as well.

Geographically the accidents of the elderly seem to be more concentrated, and thus presumably easier to approach when it comes to prevention through improvements in the traffic environment. The accident distribution over the day seems to follow the elderly's exposition rather than the traffic intensity.

REFERENCES

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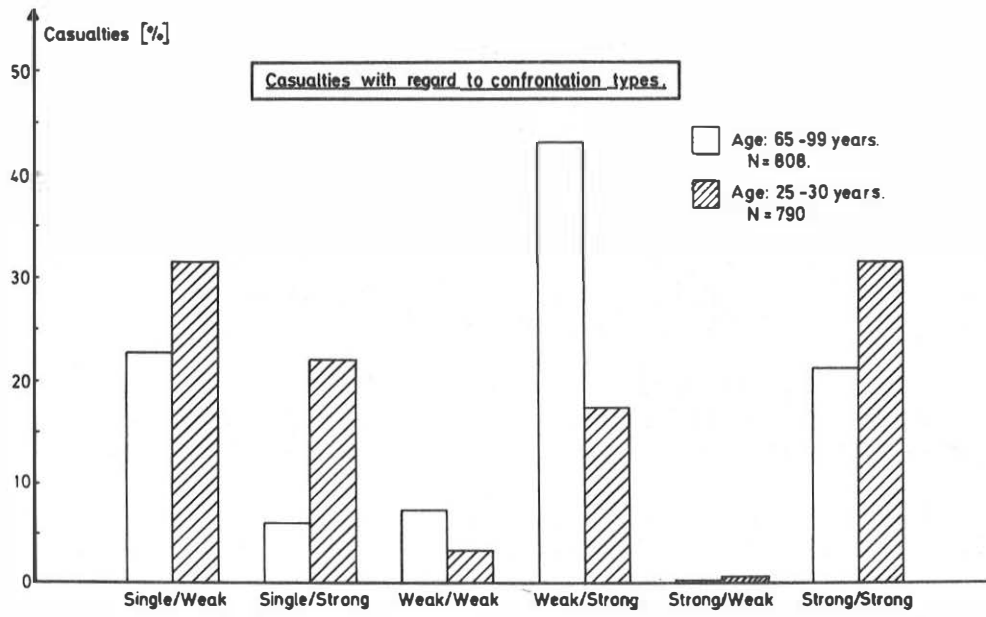


Fig.1.

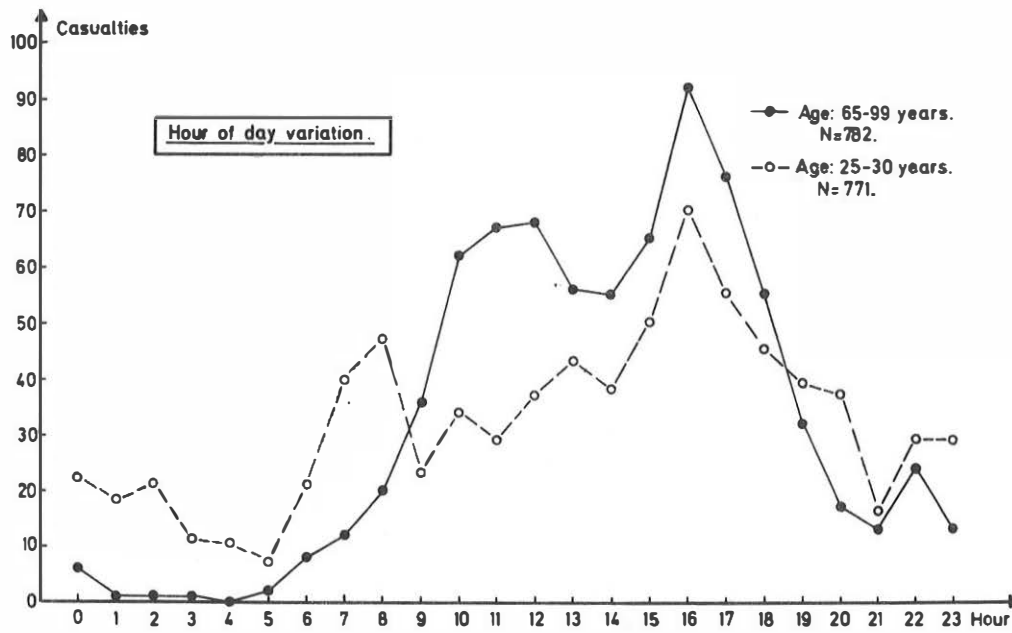


Fig. 2.

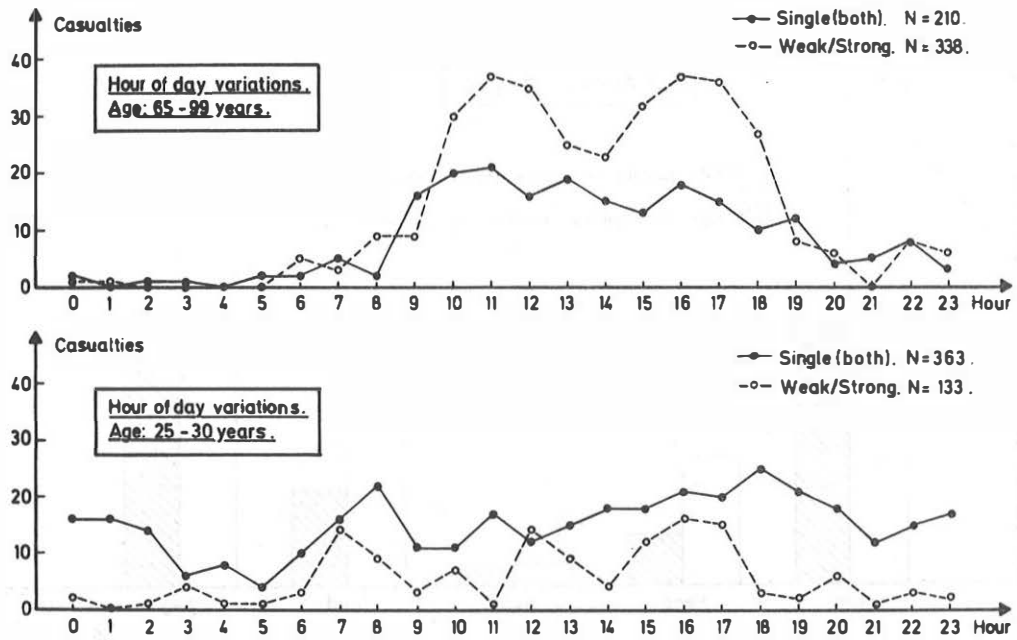


Fig.3.

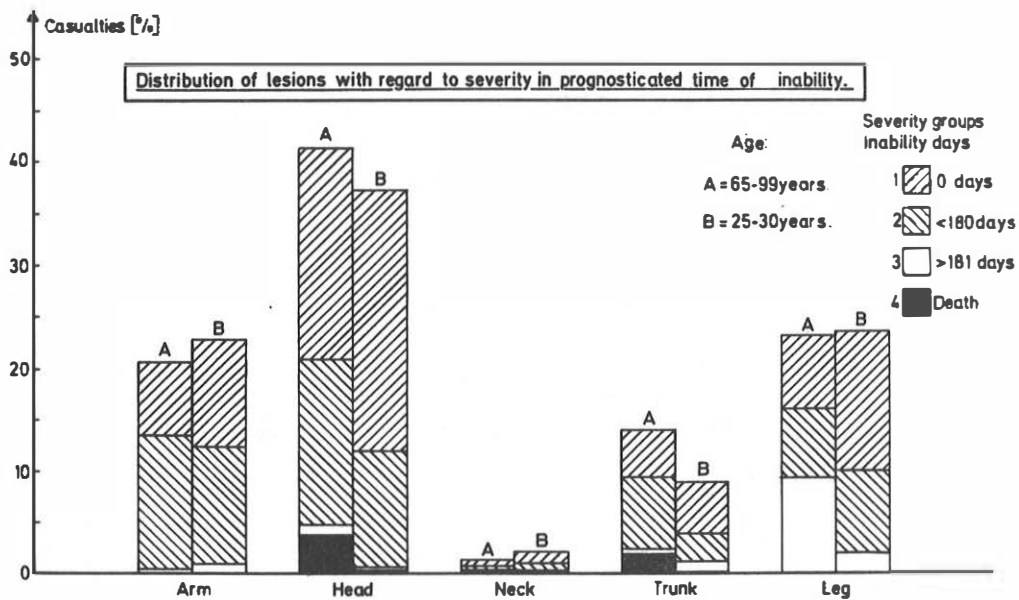


Fig.4.

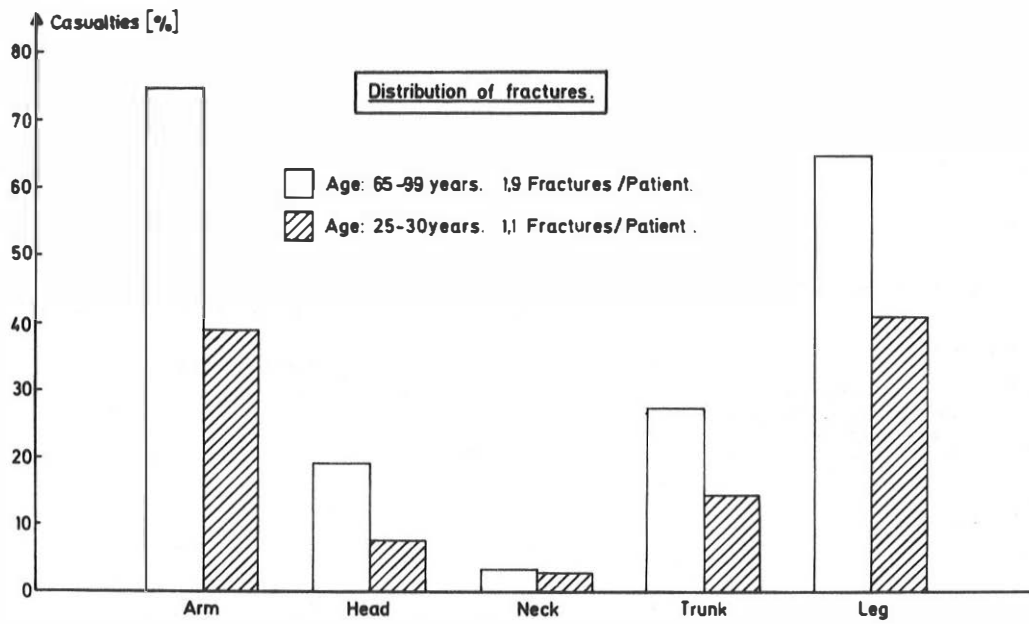


Fig.5.