INDIRECT COSTS OF STROKE IN TURKEY

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OBJECTIVES

Stroke is the second leading cause of death globally with high burden in terms of both direct and indirect costs. As the survivors of stroke can live with a long-term disability and can be dependent to other people to undertake daily activities, the indirect cost of the disease can be higher than envisioned. Although there are studies exploring the direct costs of stroke, studies about indirect costs are not available in Turkey. This study aimed at estimating the indirect cost of stroke in Turkey.

METHODS

Indirect costs of stroke were estimated by a questionnaire covering questions on the working status, number of days out of work due to stroke and performance at work. Information about the caregivers such as age, occupation, working status were also inquired in the questionnaire. The answers were analyzed from the perspective of the human capital approach. The questionnaire was answered by 200 patients treated at a university hospital with stroke diagnosis in 2014.

RESULTS

Three different types of indirect costs were calculated at the end of the survey. These were; productivity losses due to absenteeism (days of work missed because of illness), productivity losses due to presenteeism (days at work with a limited performance due to health status) and productivity losses due to unpaid care-giving by a relative or other person.

Productivity losses due to absenteeism & productivity losses due to presenteeism

Number of working patients were 21 and the employment status of other patients are listed in Table1.

Table 1: Employment status of patients

Employment Status	Number	%
Working	21	10.5
Unemployed or jobseeker	1	0.5
Self employed	1	0.5
Retired	99	49.5
Unable to work due to health problems	16	8.0
Others	62	31.0
TOTAL	200	100.0

These 21 patients' work days loss due to stroke was calculated as 167 hours annually, meaning approximately 3 full day work loss in a month per patient (under the assumption of 8 working hours per day).

Annual productivity losses due to absenteeism and presenteeism were calculated by both age and gender and education and gender (Table 2).

Table 2: Productivity loss due to absenteeism and presenteeism

Productivity Loss	Total (TRY)	Per patient (TRY)
Absenteeism		
Age and gender	34,056.94	4,865.27
Education and gender	26,411.59	3,773.08
Presenteeism		
Age and gender	37,608.51	3,760.85
Education and gender	37,735.02	3,773.50

Productivity losses due to unpaid care-giving

58% of the patients stated that they cannot undertake their daily activities and 86% of those patients needed help from others. Total number of hours spent for care-giving was found to be 1,031 per year. Considering the education and gender of the caregivers, annual productivity losses were calculated to be 113,145.27 TRY in total and 1,131.45 TRY per patient.

In total, annual indirect cost per stroke patient was estimated to be 9.562,57 TRY (2,990€) (Table 3).

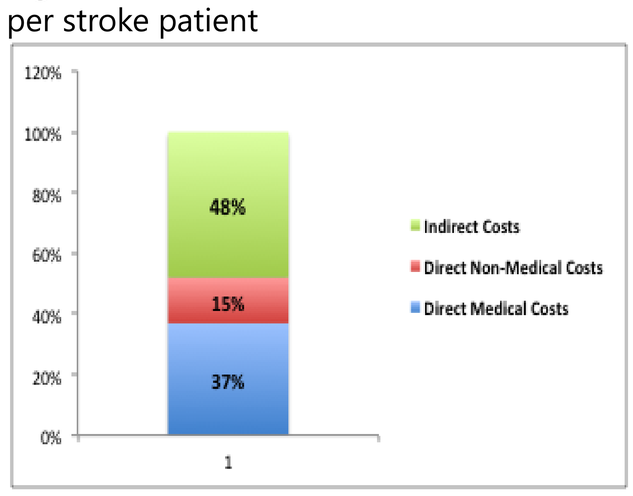
Table 3: Total annual indirect cost per stroke patient

	Total (TRY)	Per patient (TRY)
Absenteeism and presenteeism (by age and gender)	71,665.45	8,431.12
Care-giving	113,145.27	1,131.45
Total	**184,810.72**	**9,562.57**

Total annual indirect cost per stroke patient was higher than the annual direct medical costs per patient calculated in the same study (2,320€)[1].

The total annual cost per patient was 19,948.81 TRY (6,234€) (7,444 TRY direct medical costs, 2,942 TRY direct non-medical costs, 9,562 TRY indirect costs (Figure 1).

Figure 1: Total direct and indirect cost per stroke patient



CONCLUSION

The results of the study confirmed that stroke is a disease with high societal costs in Turkey as well. Exclusion of these costs in the decision-making process and assessment of new technologies for stroke may hinder the real value of the technology for the society and the reimbursement agency.

References

1. Tatar M, Senturk A, Tuna E, Karabulut E, Caliskan Z, Arsava EM, Topcuoglu MA, Direct Treatment Costs of Stroke in Turkey, 18th Annual European Congress of ISPOR, 2015

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