INTRODUCTION

The economic burden of chronic diseases is high due to the persistent disease progression and the need of lifelong health care services. The economic burden of chronic diseases is divided by patients and their families, health insurance, state and society in different proportion.

Knowledge of the costs of an illness can help policy makers to decide which diseases need to be addressed first by health policy. The micro- or macro-level decision of resource allocation defines the distribution of economic burden among stakeholders. In the macro-level decision-making (e.g. allocation of resource of government budget among each sector) societal perspective is dominant. In the micro-level decision-makers reflect their own budget from financer perspective.

Cost-of-illness (COI) studies aim to assess the economic burden of health problems. These studies are overall, and are conducted for an ever widening range of health conditions and geographical settings. While they attract much interest from public health advocates and healthcare policy makers, inconsistencies in the way in which they are conducted and inconsistencies in the way in which they are performed have limited their usefulness. COI is able to evaluate the direct, indirect and intangible costs of a given disease in different perspectives (e.g. societal, public payer, patient, cross-national). Depending on perspective, it consists of different elements, and it values identical cost contents in different ways. The societal perspective takes account of all cost factors from the point of view.

OBJECTIVES

COI can become usable decision supper tool for a decision making of health care financing on micro-level in societal perspective if it has a uniform, objective methodology and a comparable results. The tree of previous years in Hungary increase the value of COI studies of societal perspective. Several methods are available for the evaluation of the chronic diseases’ total costs in societal perspective COI studies.

In this analysis, our aim was through the example of the chronic disease rheumatoid arthritis:

- to present and compare the results of COI studies with different design and structures from different data resources
- to estimate the total cost of indirect cost of rheumatoid arthritis (RA) from different approaches
- to analyze the conditions and limitations of societal perspective COI’s application in the healthcare-related decision-making process in Hungary

METHODS

Direct costs are costs directly linked to the treatment, detection, prevention or care of an illness. They are further separated into medical cost, i.e. costs that should be paid to a health care sector, and non-medical costs that occur in other sectors, such as social services, community or patients themselves. Other non-medical costs such transportation, social services, etc are integrated into indirect costs. Indirect costs are production losses that result as a consequence of an illness, premature death or treatment of an illness. These definitions are used in most studies, but there is some discussion as to whether informal care costs should be considered a direct or an indirect cost. Informal care costs can be estimated in three different ways: production losses for informal care's costs were found €837 and €2 110 534.

Indirect costs of RA patients were managed by 44 129 subjects were detected. The cost of sickness benefit at all RA patients was specified on the financer perspective.

The potential applicability of COI in societal perspective is analyzed with the comparison of indirect cost value and ratio among Hungarian RA patients from COI studies with different design and data resources. The value and ratio of indirect cost of RA in Hungary was estimated in three different methodological approaches:

1. Systematic literature research on PubMed database at 2011.02.01.
2. Estimation from public macro data 'top down'. The top down approach measures the proportion of a disease that is due to economic burden of disease or risk factor.
3. Questionnaire survey was conducted among Hungarian RA patients with societal perspective - 'bottom up'. The bottom-up approach estimates costs by calculating the average cost of treatment of the illness and multiplying it by the prevalence of the illness. Estimation from micro sources.

RESULTS

Based on the systematic literature research there were 357 findings for ‘Rheumatoid Arthritis AND Cost of Illness’. After multiple selections 12 relevant articles were involved. Studies used a wide range of sources (patient interviews, local register, hospital data or clinical study reports), which resulted a strong limitation of comparison or meta-analysis. An international analysis Kobelt et al [1] found the most relevant for an international comparison, where based on epidemiology and macro data estimation.

Table 1. Average cost of early retirement

<table>
<thead>
<tr>
<th>Category</th>
<th>Sample</th>
<th>Treated RA patients</th>
<th>Disease benefit at all RA patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disability pension</td>
<td>3 300</td>
<td>44 129</td>
<td>€2 110 534</td>
</tr>
<tr>
<td>Early retirement</td>
<td>€837</td>
<td>44 129</td>
<td>€1 767.5</td>
</tr>
<tr>
<td>Sick benefit</td>
<td>€501.9</td>
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<td>Total</td>
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Figure 1 shows, there is a wide range in Europe on the average cost pro patient in the amounts (3 700 – 15 000 €) also and in the structure of costs elements (i.e. informal costs: 30-43%). The cost analysis was undertaken for Hungary as well, and the informal costs found on a relatively high proportion. The prevalence was found 37 907 patients and the indirect and informal care’s costs were found €537 and €2 237 at 2008.

Figure 1. Average cost of RA, 2008 [2]

With the second ‘top-down’ approach the costs of RA were defined from different public sources. Direct medical costs were clariﬁed on the National Health Insurance Fund and Administration (NHIFA) database, NHIFA database uniquely includes health care utilization data (pharmaceutical, in- and outpatient care, diagnostics, therapy, medical devices). Disability pension of the total population of Hungary. Since 2004, all ﬁnanced health care services are strictly validated and use the same database structure. The representative data base covers the 10 million whole Hungarian populations. Disability pension because of early retirement was speciﬁed on the published sources of the Central Administration of National Pension Insurance (CANPI) and the National Rehabilitation and Social Affairs Ofﬁce (NIRSAO).

Table 2. Main results of RA patient’s questionnaire 2011

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The comparison of the listed resources alongside identical dimensions indicates that the tendencies are similar although there are signiﬁcant differences of magnitude. It is hard to compare the results of the three different methodological approaches, because of signiﬁcant differences on the amount. Different approaches could evolute a wide scope of answers, even if they used the same sources.

CONCLUSIONS

Decisions about healthcare resource allocations affect social welfare. In reimbursement decisions the NHIFA uses the ﬁnancer perspective, but in the ranking and evaluation of health technologies and therapies the societal perspective represents the basis for optimization. In Europe pharmacoeconomic guidelines are commonly used and widespread, and declare relevant parameter selection and modeling criteria. COI studies can help in the identiﬁcation of decision-making focal points, although this necessitates the assessment and standardization of the applicable methodologies.

REFERENCES