Do Clinical Trials Tell us All the Truth? Relative Versus Absolute Risks and their Influence on the Therapeutic Decisions of Cardiologists

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Brotons et al demonstrate in this number of the journal how different ways of presenting the results of clinical trials can affect perception of the effectiveness of different treatments and influence the decision to prescribe drugs in different cardiovascular prevention scenarios. The authors analyzed the attitudes and perceptions of Spanish cardiologists toward the primary and secondary prevention of ischemic heart disease by means of a survey that was made of the members of the Spanish Society of Cardiology. An advantage of this study is that it used three types of questionnaires that were assigned randomly to participants. In addition, each questionnaire presented several clinical scenarios and asked questions about the physicians’ attitudes and preference for different preventive treatments in different clinical scenarios. Nevertheless, one limitation of the study is that it did not allow for changes in the perception and therapeutic attitudes of each physician in relation to the type of information presented for evaluation. Each physician received only one type of questionnaire (with information presented in one way). On the other hand, there was a notable imbalance between the number of cardiologists who received questionnaires in the relative risk format and those who received it in the absolute risk or number of patients needed to treat (NNT) formats. In addition, the rate of participation was only 40%, which is another important limitation to generalizing the results of this study.

On the other hand, the conclusions reached coincide with those obtained in similar studies that have been published. One of the objectives of evidence-based medicine is to improve therapeutic decision-making through a critical evaluation of the most relevant medical bibliography by interpretation of the results and their application to daily practice. Most clinical trials published present their results as relative risk (proportional benefit), the interpretation of which is clinically complex and subject to confusion. Taken alone, relative risk is not very useful for decision-making. For example, a reduction of 10% in a rare episode could be considered a trivial benefit, whereas the same reduction in a common episode has great impact on public health. In reality, relative risk is useful mainly in research, but not for reaching decisions about a specific patient because it does not estimate the impact of the benefit on the population, as estimators of absolute risk do. That is to say that to make a correct therapeutic decision it is not enough to know that the intervention has a beneficial effect, it is also necessary to know the magnitude of this effect.

For example, to expect that the treatment of mild hypertension will produce the same benefit in an individual as is obtained in relative terms (a 40% reduction in the risk of infarction in a large meta-analysis of experimental studies) can be ultimately frustrating. When the effectiveness of treatment is measured in absolute terms, that is to say, when the part of the risk that is unmodified by the intervention is subtracted from the observed benefit (in our example, the cardiovascular episodes that occur with treatment), the theoretical benefit of 40% for treatment decreased to 2%. The idea that the baseline risk of patients influences the absolute benefits that can be expected from an intervention has been widely discussed in the cardiovascular bibliography. Rose called attention years ago to the fact that the baseline risk of individuals participating in primary prevention trials was less than that of patients recruited in secondary prevention trials. This explains to a great extent why the classic estimators of effectiveness (relative risk) are used instead of indicators of therapeutic effectiveness (absolute risk).
TABLE 1. Benefits of treating five cardiovascular problems. Number of patients needed to treat (NNT)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Episode</th>
<th>Years of follow-up</th>
<th>Baseline risk</th>
<th>RRR</th>
<th>NNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBP 115-129 mm Hg</td>
<td>Death, stroke, AMI</td>
<td>1.5</td>
<td>0.13</td>
<td>89</td>
<td>3</td>
</tr>
<tr>
<td>Coronary bypass</td>
<td>Death</td>
<td>5</td>
<td>0.32</td>
<td>56</td>
<td>6</td>
</tr>
<tr>
<td>Aspirin for TIA</td>
<td>Death, stroke</td>
<td>2.2</td>
<td>0.23</td>
<td>31</td>
<td>6</td>
</tr>
<tr>
<td>Hypercholesterolemia</td>
<td>Death, AMI</td>
<td>7.4</td>
<td>0.12</td>
<td>14</td>
<td>89</td>
</tr>
<tr>
<td>DBP 90-109 mm Hg</td>
<td>Death, stroke, AMI</td>
<td>5.5</td>
<td>0.05</td>
<td>14</td>
<td>141</td>
</tr>
</tbody>
</table>

preventive treatment is determined by the way in which it is presented. These results indicate that many patients might not accept treatment even if the findings of published trials were presented in a clear and comprehensible way by physicians. In fact, communication of the potential effects (beneficial and harmful) of treatment to patients has special importance, particularly in primary prevention, where subjects are usually symptomatic and the benefits, if there are any, can only be expected in the long term. There are no studies in which, after informing patients about the potential benefits and drawbacks of the intervention, the probability of acceptance is measured in relation to the way in which this information is presented (RRR, ARR or NNT). In addition, it is necessary to incorporate results that have not been considered much to date and have only been recently incorporated in trials, such as measurements of the quality of life.

Finally, it would be very interesting to know if the active participation of patients in the process of therapeutic decision-making produces a benefit (increased satisfaction, better quality of life, etc.), how large this benefit is, and the mechanisms and factors that could explain this benefit (better compliance, better perception of the problem, etc.). To date, only testimonial evidence sustains the hypothesis that the active participation of patients in therapeutic decision-making can improve the clinical results of intervention. On the other hand, there is fear that this participation can negatively affect the doctor-patient relation.

REFERENCES