Introduction/Objectives

The poster is a contribution to the ongoing discussion on the increase in radiation exposure in medicine due to the increasing amount of ionizing radiation sources and procedures using ionizing radiation. The aim is to confirm whether this increase is a fact also in the Czech Republic and in addition, to take into account other information (such as the number of radiation workers and their doses or quality of medical care) relevant to considerations whether this should be seen as a negative phenomenon.

Methods

All presented data were obtained from the registers kept by the State Office for Nuclear Safety of the Czech Republic (Register of ionizing radiation sources and Central register of professional exposures), from databases of health insurance companies and from information provided by Institute of Health Information and Statistics of the Czech Republic.

Results, Discussion, Conclusions

Presented data clearly indicates that the radiation sources used in health care are continuously renewed and their total number increases (Figure 1). Obviously there is an increasing trend in the number of examinations and treatments associated with higher patients’ doses and in their share on total number of examinations. For interventional procedures there is a slight increase (Figure 2) but for CT examinations it is very distinct (Figure 3).

CT procedures create in Czech Republic about 10% of total radiodiagnostic procedures. We have no evidence how many are unnecessary procedures. In European countries CT examinations creates in many cases more than 10% of total examinations and worldwide for countries in health care level I (UNSCEAR 2008) 7%.

To evaluate the correlation of growth of number of CT or interventional procedures it is of course not easy to find a specific parameter demonstrating a direct impact to the health improvement of certain patient.

This trend described above cannot be however considered only as a detrimentally negative phenomenon. Increasing number of sources and procedures is undoubtedly associated also with increasing quality of medical care where obtaining of better diagnostic information or possibility of performing in time a specific therapy has positive benefits for the patient.

As the base of a standardized procedure serves in this case an identified good practice with the best parameters of selected procedure. Another workplaces are then motivated by the example and demonstration of such good practice to the improvement. This approach was already tested in selected hospitals as a pilot study and a decrease of individual doses of patients as well as physicians are then motivated by the example and demonstration of such good practice to the improvement. This approach was already tested in selected hospitals as a pilot study and a decrease of individual doses of patients as well as physicians has been observed when implemented. This effort will continue in next months with the support of professional bodies and radiological physicians working on related facilities.

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Table 1: selected parameters demonstrating improvement of health care in CZ

<table>
<thead>
<tr>
<th>Year</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>1179</td>
<td>1076</td>
<td>2255</td>
</tr>
<tr>
<td>2005</td>
<td>711</td>
<td>657</td>
<td>1368</td>
</tr>
<tr>
<td>2009</td>
<td>320</td>
<td>295</td>
<td>615</td>
</tr>
<tr>
<td>2004</td>
<td>179</td>
<td>165</td>
<td>344</td>
</tr>
<tr>
<td>2005</td>
<td>603</td>
<td>508</td>
<td>1111</td>
</tr>
<tr>
<td>2008</td>
<td>402</td>
<td>351</td>
<td>753</td>
</tr>
</tbody>
</table>

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