Potential for Optimization in Paediatric CT examination in Sudan

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The purpose of this study is to assess whether in CT practices adult CT exposure parameters are used for paediatric patients in some selected CT facilities in Sudan, and suggest recommendation for optimization.
Method

- As a part of an International Atomic Energy Agency (IAEA) project RAF/9/033, doses in term of volume computed tomography index (CTDIv) in mGy and dose length product (DLP) in mGy.cm were recorded from the console in three CT units in Khartoum, Sudan for paediatric patients aged 1-15 years old and compared with dose to adult patients for head and abdomen examinations in each unit. Also the doses for patients less than 1 year age are registered for head examination.
Results

1. Head exam

CTDI & DLP for head exam
Results

2. Abdomen exam

CTD\text{IV} & DLP for Abdomen exam

<table>
<thead>
<tr>
<th></th>
<th>Unit 1</th>
<th></th>
<th>Unit 2</th>
<th></th>
<th>Unit 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CTD\text{IV}</td>
<td>3.0</td>
<td>127.72</td>
<td>89.7</td>
<td>320.81</td>
<td>4.5</td>
<td>34.5</td>
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<tr>
<td>DLP</td>
<td>4.2</td>
<td>193.72</td>
<td>69.7</td>
<td>34.5</td>
<td>5.3</td>
<td>161.7</td>
</tr>
</tbody>
</table>

Legend:
- 1-15 Years
- Adult
Conclusions

• In two CT units higher patient doses in term of CTDI$_v$ and DLP for head examination were related to patients aged less than one year and 1-15 years compared with older age groups in each unit.

• Optimization can be achieved by implementing different protocols for each age group.

• The results highlighted the need for training of the radiographers.