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OPTIMIZATION OF CT PATIENT DOSE: FIRST RESULTS FROM A DOSE MANAGEMENT PROJECT

Introduction

- Contribution of radiation medical exposure has increased sharply in recent years.
- It is mandatory to implement procedures for monitoring and optimizing the radiation doses received by patients

Purpose

- Show the impact and benefits of implementing a management project dose radiation in a protection department
- Show and analyze the results after three years of data collection doses.

Materials and Methods

- In mid-2013 our hospital implemented the dose monitoring tool of General Electric (DoseWatchTM).
- In 2015 project was extended to include

CT for pediatrics	Philips Brillance
RF device	Philips DigitalDiagnost
pediatric cardiac catheterization device	Siemens ArtisZee
CT for general use	GE Lightspeed
CT for general use	Toshiba Aquillion

- All pediatric RX studies are monitorized with this structure
- Dose management team was created, including two radiologists and two physicists

Materials and Methods (2)

- A dose alert threshold based on statistical approaches was established for each protocol to control

- Dose comparation with the european dose reference levels is performed

Results

Median CTDIvol (mGy)

	0-5 y	6-11 y	11-15 y	16-20 y	>21 y
Skull	4,2	22,79	26,2	42,7	42,7
Abdomen	3,1	4,17	6,26	10,35	13,98
Thorax	1,9	2,21	2,42	6,2	12,73
Lumbar spine	5,8	3,78	5,04	9,82	36,59

Statistical dispersion.

The intercuartile range (IRQ) was chosen for the meassure of the statistical dispersion

IRQ (mGy)

	0-5 y	6-11 y	11-15 y	16-20 y	>21 y
Skull	14,22	22,43	38,54	42,99	22,76
Abdomen	0,9	2,63	5,06	6,16	7,33
Thorax	0,55	2,23	2,90	8,24	8,98
Lumbar spine	14,34	2,12	11,43	11,90	22,32

We can use this IRQ to find outliers and to set an alarm

Conclusions

- Implementation of a dose management project is really important to minimize the radiation risks at hospital
- Creation of a dose team and the use of a dose monitoring tool are crucial to control and optimize the dose
- Implementation of the DoseWatchTM tool eases the analysis and comparation of dose values between different devices, protocols and modalities