



diastolic volume; ESV, end-systolic; SV, stroke volume), ejection fraction (EF) and myocardial mass were calculated by manual planimetry with a dedicated software. LE mass was measured on short axis by manual planimetry as an area with SI > 6SD from normal tissue. Patients were divided into two different subgroups with LE (group 1) and without LE (group 2). For statistical analysis we used Spearman's correlation. **Results:** In group 1 we observed the following **Results:** EDV 125±40 ml, ESV 36±22 ml, EF 72±10%, SV 88±25 ml and LE mass 10±14 g; in group 2 we observed: EDV 110±32 ml, ESV 27±21 ml, EF 77±7%, SV 85±24 ml. A significant positive correlation between LE mass and EDV (p=0.007), ESV (p=0.001) was obtained, meanwhile a negative correlation with EF (p=0.001). A correlation between SV and LE mass was not reported (p=0.6).

**Conclusion:** Patients with LE present a worst left ventricular function compared to control group. LE mass is correlated with a progressive systolic dysfunction. This finding could be relevant in terms of therapeutic approach especially in case of early HCM onset.

**B-0578** 11:51

**Black blood versus bright blood T2\* acquisition in cardiovascular magnetic resonance (CMR) for thalassaemia major (TM) patients: which can do better?**

I. Di Giampietro, C. Liguori, I. Sansoni, P. Cianciulli, L. Mortato, B. Beomonte Zobel; *Rome/IT*

**Purpose:** To assess between black blood and bright blood T2\* CMR acquisition which is superior in terms of images artefacts presence and to establish if significant differences can be founded in terms of T2\* values, intra and inter-observer variability.

**Methods and Materials:** In a setting of 50 TM patients we performed both conventional bright blood and black blood T2\* CMR sequences to determine intra and inter-observer variability and the presence of artefacts. In all patients, 2 separate studies of both techniques were performed to assess interstudy reproducibility. Image quality was assessed using a 5-point grading scale (0-very poor quality; 5-excellent quality) and image analysis was in all cases conducted by 2 experienced observers.

**Results:** Cardiac T2\* values ranged from 5.30 to 50.63 ms. The mean T2\* values were not different between black blood and bright blood acquisitions (32.04± 1.80 vs 34.52 ± 2.02 ms, p < 0.001). Compared with the conventional bright blood diastolic acquisition, the coefficient of variance of the black blood technique was superior for intra-observer reproducibility (p < 0.001), inter-observer reproducibility (p < 0.001) and inter-study reproducibility (p=0.001). Assessment of artefacts showed a superior score for black blood vs white blood scans (p < 0.001).

**Conclusion:** Black blood T2\* CMR has superior reproducibility and reduced imaging artefacts for the assessment of cardiac iron, in comparison with the conventional bright blood technique, which make it the preferred technique for clinical practice.

10:30 - 12:00

Room P

**Radiographers**

**SS 914**

**Dose and technique optimisation from the radiographer's perspective**

*Moderators:*  
P. Blackburn Andersen; *Kolding/DK*  
D. Tack; *Baudour/BE*

**B-0579** 10:30

**Patient's knowledge about radiation and radiological protection**

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**Purpose:** To obtain and analyse patient's knowledge and perceptions regarding radiation exposure, from both natural and man-made radiation of medical procedures and interventions. Verify if patients worry about their exposure when undergoing medical exams, are aware of associated risks and means of radiological protection and if their knowledge on medical radiation exposure affects their own decisions.

**Methods and Materials:** On a medical environment a self-applied questionnaire was used as instrument and assigned to patients who would undergo medical imaging exams involving ionising radiation. A total of 300 valid questionnaires were interpreted and statistically analysed through descriptive statistics and Phi & Cramer's V correlation tests.

**Results:** 44.3% of patients believe most of their exposure derives from electronic appliances and 25% from medical imaging exams, while patient's with higher edu-

cation levels tend to consider is comes from the environment. The great majority of patients (95%) consider that only certified personnel should operate medical imaging equipment, but 74% never ask for their qualifications. 66.3% of patients claim that Technologists have more education on radiological protection and about 60% of patients rarely or never worry about radiation exposure when undergoing medical imaging exams.

**Conclusion:** Patients overestimate the risks of industrial radiation exposure while they underestimate the associated risks of medical radiation exposure and the Technologist's ability to reduce the inherent radiation exposure of medical imaging exams. Patient's knowledge on radiation and radiological protection is based more on perceptions and beliefs, rather than factual knowledge.

**B-0580** 10:39

**A study of the awareness of x-ray radiation doses among Norwegian student radiographers**

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**Purpose:** To assess the level of student radiographers' knowledge concerning both the radiation doses received by patients undergoing commonly requested radiological investigations and the associated risks of these doses.

**Methods and Materials:** A survey was sent to all radiography program teachers in charge (n=6) in Norway, along with a request to administer the survey to final year student radiographers in their final term of study. The questionnaires pertained to radiation-related issues and demographic information.

**Results:** The response rate was 79% (122/155). The majority of the student radiographers reported poor knowledge of radiation doses. They were either ignorant or underestimated the radiation doses used in the various imaging examinations. Only 4 student radiographers answered more than 50% of the items in a questionnaire designed for assessment of their level of knowledge correctly. Overall 63% (n=77) of the student radiographers were not aware of the radiation dose received from a chest x-ray, and 64% (n=78) of the students were ignorant of the annual dose limit for the patients. The study identified no statistically significant differences among radiography institutions (p=0.08) and between genders (p=0.61).

**Conclusion:** Overall, final year student radiographers' knowledge regarding radiation doses and the risks associated with ionising radiation is reported to be poor.

**B-0581** 10:48

**Radiographer's role in dose optimisation in co-operation with dentists in orthopantomography**

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**Purpose:** To find out consequence of referral in orthopantomographic imaging of the teeth in order to decrease patient's dose. Follow-up of doses was made in order to find out how permanent is the manner of dentists to ask partial OPTG.

**Methods and Materials:** Dose area product (DAP) of different programs was measured without patient. The variation in different program is large, e.g. when using partial program instead of whole mandible to seven-year-old child, dose is only one third (from 6.13 cGycm<sup>2</sup> to 2.31 cGycm<sup>2</sup>). The radiographers and dentists evaluated critically the present procedures: very poor referrals without any focused indication and due to this orthopantomogram was always taken as whole mandible. Dentists have been reminded of the possibility of partial OPTG also later. Form of OPTG was analysed from digital archive in two-month periods.

**Results:** After meeting the dentists started to write better referrals with clear indications and detailed information. On the basis of this information radiographer takes whole or partial mandible and set the kV and mA according to the required image quality. The dentists have to be reminded of this possibility to make the procedure permanent.

**Conclusion:** It is easy to decrease patient dose in co-operation the referral dentists. It requires radiographer's professional attitude and activity to remind the dentists of the importance of referral and its affect to patient's dose and harms due to ionising radiation to children. Multiprofessional co-operation, open discussions and awareness of the dose levels are the key points.

**B-0582** 10:57

**Radiographic imaging: image quality and radiation dose optimisation in digital imaging**

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Digital imaging applications have been increasing rapidly in the past years. Implementation of digital imaging systems has introduced a need to study the possibilities that digital imaging has to offer. Traditional tradeoffs between image quality and dose no longer exist.

Saturday

