less often successful (95 vs. 78%, p=0.001) and more likely to be associated with a procedural MI (15 vs. 4%, p=0.005). RPB pts had a 20% in-hospital mortality vs. 3% for controls (p<0.001). Event frequencies at 6 months (with Kaplan-Meier estimated rate) are depicted below:

| Adverse events | Controls (n=220) | RPB patients (n=55) | Hazard Ratio | P-value |
|---|---|---|---|---|
| Death | 10 (4.6) | 16 (29) | 7.20 | <0.001 |
| Death/MI | 30 (14) | 20 (36) | 3.06 | <0.001 |
| Death/MI/Angina | 55 (25) | 21 (38) | 1.71 | 0.037 |
| Death/MI/Angina/ Revascularization | 64 (23) | 23 (42) | 1.62 | 0.047 |

Conclusions: RPB is a serious complication associated with severe in-hospital and 6 month morbidity and mortality

## 1155-81 Radiation Exposure to Patients During Diagnostic Cardiac Catheterization

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Cardiac catheterisation is a widely performed procedure. Ionising radiation during these procedures results in an increased risk of radiation induced effects. Cardiac investigations vary in their complexity according to the information being sought. Exposure time and radiation risks of such procedures are not fully documented. An estimation of the effective dose (ED) can be obtained from the measurements of the dose-area product (DAP). Published reports state an estimate of 2.5% per Sievert lifetime risk of fatal cancer for a population between the ages of 40 and 60 years.

**Aims and methods:** A retrospective analysis of adult cardiac procedures was carried out in a regional cardiothoracic unit to determine the DAP, ED and estimated risk of malignancy. We compared 7 diagnostic groups (Table 1). Dose-area product meter (Diamentor PTW, Freiberg) attached on the X-ray unit (Philips Polydiagnost C2 image intensifier system) was used for the estimation of the radiation dose received by the patient during the procedures.

**Results:** A total of 4,706 different procedures were studied (Table 1). Average age and weight of the patients were 60.9 years and 79.5 kgs respectively.

**Conclusions:** Cardiac angiographic procedures other than a straightforward investigation of native coronaries ± left venticulography are associated with significantly high radiation doses. Patient exposure is particularly high in those undergoing graft studies (p=0.0001).

Table 1

Screening time, DAP, ED and estimated risk of malignancy for diagnostic cardiac imaging [Mean ± SD]

| Groups | Number | Screening time (seconds) | DAP (Gy/Cm$^2$) | ED (mSv) | Estimated risk of malignanacy (%) |
|---|---|---|---|---|---|
| Group 1 (Coronary angiography) | 549 | 248 ± 325 | 15.7 ± 13 | 3.4 | 0.008% |
| Group 2 (Coronary angiography + left ventriculography-LHC) | 3528 | 200 ± 243 | 16.8 ± 9 | 3.7 | 0.009% |
| Group 3 (Combined right heart catheterisation + LHC) | 217 | 524 ± 387 | 28.8 ± 15 | 6.3 | 0.015% |
| Group 4 (Left ventriculography + aortography) | 11 | 437 ± 470 | 26.5 ± 11 | 5.8 | 0.014% |
| Group 5 (LHC + aortography) | 168 | 416 ± 424 | 26.5 ± 14 | 5.7 | 0.014% |
| Group 6 (LHC + graft study) | 189 | 700 ± 518 | 31.3 ± 14 | 6.8 | 0.0175 |
| Group 7 (LHC + aortography + graft study) | 44 | 721 ± 355 | 39.9 ± 18 | 8.6 | 0.0215% |

## 1155-82 Reduced Fluoroscopy Time and Cine Sequences With Digital Flat Panel Technology

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**Background:** Digital Flat Panel Systems (DFPS) (GE Innova 2000$^{TM}$, Waukesha, WI) have been shown to provide real time cardiac images with improved image quality at lower radiation doses in comparison to conventional Image Intensifier Systems (IIS). There is no data showing that the use of this technology impacts resources and patient care. We have hypothesized performing percutaneous cardiac intervention(PCI) with DFPS will lead to shorter case time, fluoroscopy time, number of cine runs, and less contrast.

**Methods:** All PCI's performed using DFPS and IIS during the year 2002 by four high volume operators were reviewed. Single vessel, single stent procedures without diagnostic angiography were selected. Patients were matched for body surface area (BSA), artery, guide size, stent length and diameter. A total of 133 patients were analyzed(85 IIS cases, 48 DFPS cases).

**Results:** Table 1.

**Conclusion:** On average, the operator spent 15% less time (p<0.05) using fluoroscopy and took 12% fewer cines (p<0.05) using DFPS. While there is a trend towards less contrast use and shorter case length times with DFPS, the mean values did not reach statistical significance. Using DFPS leads to less fluoroscopy time and cine runs which may ultimately decrease the amount of radiation exposure to both staff and patients. A more complex patient population(larger BSA) or intervention(multivessel) may yield even greater benefits.

| Mean Value | Image Intensifier System | Digital Flat Panel System (GE Innova 2000) | p Value |
|---|---|---|---|
| Fluoroscopy Time (minutes) | 10.6 | 9.0 | 0.016 |
| Number of Cine Runs | 21.0 | 18.5 | 0.002 |
| Total Case Time(minutes) | 34.0 | 32.0 | 0.465 |
| Volume of Contrast (cc) | 250.0 | 234.0 | 0.152 |

## 1155-83 A Pooled Analysis of Sirolimus and Paclitaxel-Eluting Stent Trials

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**Background:** Several clinical trials have examined the efficacy of drug-eluting stents (DES) at reducing restenosis rates following percutaneous coronary intervention. Although DES appear to decrease restenosis rates, a pooled analysis has not been published that examines treatment effect.

**Methods:** We performed a pooled analysis of 4 clinical trials involving over 1,700 patients examining Sirolimus-eluting stents, and 5 trials involving over 1,900 patients examining Paclitaxel-eluting stents. The outcomes of interest were binary restenosis rates and major adverse cardiac event rates (MACE) (composite of death, myocardial infarction and target lesion revascularization).

**Results:** In each trial, the treatment group showed lower binary restenosis rates and lower MACE rates compared to the control group (Table 1). In-stent or in-segment binary restenosis rates were reduced by 89% (95% Confidence Interval (CI) 84-92%) in Sirolimus-eluting stent trials and by 67% (95% CI 55-76%) in Paclitaxel-eluting stent trials. MACE rates were reduced by 72% (95% CI 63-79%) in Sirolimus trials and by 40% (95% CI 21-54%) in Paclitaxel trials. For all trials combined, DES were associated with an 81% reduction in binary restenosis rates (95% CI 76-85%), and a 59% reduction in MACE rates (95% CI 51-76%).

**Conclusions:** Sirolimus and Paclitaxel-eluting stents substantially reduce restenosis and MACE rates over the short and mid-term.

**Table 1.** Pooled Analysis of Sirolimus and Paclitaxel Eluting Stent Trials

| Trial | Coating | Binary Restenosis 6-8 months | | MACE 6-12 months | |
|---|---|---|---|---|---|
| | | Treatment | Control | Treatment | Control |
| *RAVEL* | Sirolimus | 0/120 | 31/118 | 6/120 | 35/118 |
| *C-SIRIUS* | Sirolimus | 1/43 | 23/43 | 2/50 | 9/50 |
| *SIRIUS* | Sirolimus | 31/348 | 128/353 | 52/533 | 130/525 |
| *E-SIRIUS* | Sirolimus | 9/152 | 67/156 | 14/175 | 40/177 |
| Sirolimus-Pooled (%) | | 41/663 (6.2) | 249/670 (37.2) | 74/878 (8.4) | 214/870 (24.6) |
| *Taxus I* | Paclitaxel | 0/30 | 3/29 | 0/31 | 3/30 |
| *Taxus II* | Paclitaxel | 19/255 | 67/263 | 27/266 | 57/270 |
| *ASPECT* | Paclitaxel | 8/100 | 15/55 | 10/117 | 3/59 |
| *DELIVER* | Paclitaxel | 38/228 | 48/214 | 53/517 | 68/512 |
| *ELUTES* | Paclitaxel | 4/138 | 7/35 | 15/152 | 7/38 |
| Paclitaxel-Pooled (%) | | 69/751 (9.2) | 140/596 (23.5) | 105/1083 (9.7) | 138/909 (15.2) |
| Total (%) | | 110/1,414 (7.8) | 389/1,266 (30.7) | 179/1,961 (9.1) | 352/1,779 (19.8) |