Molecular Imaging of Human Thrombus With Computed Tomography

<table>
<thead>
<tr>
<th></th>
<th>pVEL (cm/s)</th>
<th>pSR (1/s)</th>
<th>W:EDD (mm)</th>
<th>LVEDD (mm)</th>
<th>EF (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls</td>
<td>5±0.9</td>
<td>4±0.7</td>
<td>8.6±1.1</td>
<td>41±3</td>
<td></td>
</tr>
</tbody>
</table>
| HTN | 3.5±1.2 * | 2.6±0.6 * | 12.7±1.6 * | 43±5.5 | 70±8 *
| AOS | 3.3±1 * | 1.6±0.6 # | 12.9±2 | 48±6.4 * | 61±14 # |

* = significant differences to the control group, # = significant differences to the HTN group.

Cardiac Catheterization Simulator

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Background: Cath. Lab simulator is a computer-based software game designed to simulate real time intervention cardiology experience. It is designed as a teaching tool to increase the level of knowledge, problem solving and catheterization skills of intervention cardiology student. Increasing the knowledge and skill in this area will lead to better patient safety and outcome in the catheterization laboratory.

Methods and Results: The game may start in the emergency room setting where the patient presents with acute myocardial infarction or as an outpatient with a positive stress test. Relevant history, physical exam, labs, and EKGs are displayed. The game allows a full visual display of the cardiac cath lab. The player has an option to move the cursor (or imaginary hand) in the cath room and pick different types and sizes of guide wires, sheaths, angioplasty balloons or stents needed for a specific patient. The item is picked up by a single click and dropped by a double click. The player starts cardiac cath by pointing appropriate sized needle for arterial puncture towards either left or right groin. Lifetime guide wire, balloon and stent catheter manipulation experience is provided by using Cardio stick. It is a specialized joystick with wires and catheters which can be manipulated as in real life. Turning and pushing the wires and catheters on Cardio stick will advance those on fluoroscopic display. Balloon inflation for angioplasty and stent deployment can be done by pressing specific function buttons on the tool bar menu located in the lower panel of the screen. The game also allows the player to recognize various problems and complications arising in the cardiac catheterization lab and to address them promptly. These include pressure damping on engaging left system if critical left main artery stenosis is present, coronary artery dissections, hypotension or arrhythmias etc. If not promptly addressed, these situations can lead to lethal complications.

Conclusion: A fun and entertaining way to learn Cardiac Cath Skills and Knowledge.

CT Enhancement with Fibrin-Targeted Nanoparticles

Iodine PFOB Control

DOCS 2004, Online Cardiology Staff Scheduling Using Monte-Carlo Simulation

Dave Denes, Marie Oatman, Dan Pfiler, Melvin Mudgett-Price, Don Scipione, Tom Belfach, John Elkins, Acme Express, Inc., Cleveland, OH

Staff scheduling is an arduous, time consuming, and thankless job. The scheduler must assign staff according to very complex work requirements; apply intricate rotation rules; satisfy on and off requests; ensure that proper expertise is available; and equitably distribute the burden of premium day-types such as holidays and weekends.

Doctors on Call Schedule (DOCS) assigns staff by using an accounting framework combined with a Monte-Carlo optimization technique that shuffles staff within the schedule. A ledger of accounts is created with an account for each staff/assignment/day-type combination. Each account is debited according to work required and is credited for work assigned. The account balance quantifies the work owed by staff to each assignment for each day-type. The scheduling of staff is driven by the account balance: staff who owe the most are most likely to be scheduled, staff who owe the least are least likely to be scheduled, and staff who owe an equal amount are equally likely to be scheduled. For each scheduling cell (assignment and day) the software simulates a random event for fortune. The staff occupy an area on the wheel proportional to their account balance (work owed). Those owing a lot have a large area while those who worked in excess have a small sliver. DOCS determines who will fill the entire schedule and then enters an optimization mode that shifts...