University Hospital of North Staffordshire NHS
NHS Trust

RESEARCH needs YOU

Keele University

Intercalation Research Project

Project Title:	**An investigation into potential adverse effects of transradial access for invasive cardiac procedures**
Lead Supervisor: **Name:** **Department:** **Email Address:** **Telephone:**	**J Nolan** **Dept of Cardiology** **UHNS** **James.Nolan@uhns .nhs.uk** **01782 675998**
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Aims

Please outline the aims of your proposal (250 words):

Transradial access has become increasingly important as a means of performing invasive cardiac procedures in the UK because of compelling evidence relating to improved patient safety through prevention of access site complications and bleeding events. As a result of this, this access site is used (in preference to the previously established technique of transfemoral access) in over 70% of invasive cardiac procedures performed in the United Kingdom. This change in practice was triggered and led by the cardiac department at UHNS, we have performed and published a large series of trials relating to the positive effects of this change in practice, confirming that it has resulted in significantly improved patient outcomes. In common with all procedures that involve cannulation of an artery, and the performance of radiologically guided procedures, there are inherent downsides and risks related to the technique. The radial artery is relatively small and can be damaged by the passage of large calibre equipment which stretches and traumatises the vessel. The small calibre radial artery can be more tortuous and complex than the femoral arteries, and this may result in an increased requirement for radiological exposure. The literature relating to radial artery injury and radiation exposure is limited and compromised. The aim of this study is to gather further data about the magnitude and time course of radial injury and how it relates to patient morphology and equipment characteristics. Additionally we will examine the evolution of radiation exposure parameters with specific reference to operator expertise and patient characteristics.

Research Plan & Methodology

Explain how you intend to carry out the study. This includes the sampling strategy you intend to use, the data collection process and an analysis plan (750 words):

Vascular injury can be measured and quantified using a simple finger probe which correlates changes in peripheral blood pressure wave form to reflect vascular function. We will use this simple technique to obtain baseline measurements of vascular function in a group of patients prior to undergoing cardiac procedures. The measurements will be repeated early after the procedure, with serial measurements performed over 24 hours, at two weeks, six weeks and 12 weeks. This will allow us to evaluate the magnitude and duration of catheterisation induced radial artery injury. We will perform similar measurements in patients undergoing transfermoral procedures to compare and contrast the measurements. We will also investigate the impact of patient characteristics (height, weight, age, and comorbidities such as diabetes) and procedural factors (use of antithrombotic and vasodilator agents, equipment calibre, procedure duration) on the magnitude and duration of vascular injury.

An extensive database exists for radiation measurements in all cardiac procedures performed in the catheterisation laboratories at UHNS. There is also a spectrum of expertise in transradial procedures amongst the operators, some of whom are long established operators with 20 years experience in transradial techniques, and some of whom are relatively recent radial operators with expertise previously gained predominantly in transfemoral procedures. We will investigate the radiation parameters in relation to operator and patient characteristics, study the changes in measurement over time, and correlate measurements with operator expertise.

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Supervision Plan

Highlight the supervisory support available to the student (250 words):

The student will be expected to meet with his supervisors on a weekly basis to review progress and data collection and analysis. Support in data collection and analysis will be provided.

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Signatures & Declarations

Please ensure that all signatures are collected – otherwise your application may be delayed:

Principal Investigator:	
Signature:	
Clinical Director :	
Signature:	

Deadline 31st September 2014

Please submit the electronic version of your intercalation project to Keira.Watts@uhns.nhs.uk. If you have any enquiries, feel free to contact the Academic Development Team by phone or e-mail: