RADIOLOGY

Elective Written Report - May2011

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Q1:-The differential prevalence of illness in the UK and the developing world.

The pattern of diseases causing morbidity and mortality in Romford at Queen's hospital (my placement) mirrors that of the UK in general. The top five causes of death are Ischaemic heart disease (IHD), lower respiratory tract infections (LRTIs), stroke, COPD and cancers. Therefore, to fulfil this elective objective I investigated illness prevalence in the less developed Libya, after discussions had with one of the Radiology consultants who trained and worked as a doctor in Libya. I have also relied on WHO fact sheets to investigate this topic. In appendix 1, an excerpt from the WHO 2006 fact sheets revealed that the major causes of death in both the UK and Libya are IHD, stroke and LRTI being responsible for 41% of the total in each. Conversely perinatal conditions, accidental causes and infections are far more prevalent in Libya. In point of fact, the prevalence of tuberculosis (TB; per 100000 people) is UK 12.0, Libya 55, and annual deaths being UK 0.57 and Libya 4.1. Also, viral hepatitis and diarrhoeal diseases kill 4% per annum in Libya, quite unlike the circumstance in the UK. Moreover, the prevalence of HIV/AIDS are far higher than those figures reported to WHO i.e. <0.1% population). The director of Libya's HIV/AIDS prevention programme says there maybe >70,000 people (or > 1.1% population) afflicted. This compares with a rate of HIV/AIDS in the UK of 0.15%. The WHO reports (appendix 2), that the life expectancies for male/female (years) to be 70/75 for Libya and 78/82 for the UK. Also, that there is a ~~three~~ two- time increased likelihood to die of all causes between 15-60 years of age in Libya (i.e. ~~230~~ 140/1000 people per annum) and far higher neonatal and maternal mortality rates, as compared to the UK.

Q2:- Health provision for radiological imaging of illnesses in developing nations as compared to the UK.

Libya, has one of the highest gross domestic products (GDP) per head in Africa, with the majority of wealth arising from Oil exports. Wealth tables prepared by the World bank in 2009 (see appendix 2) found that gross national incomes per head population for Libya and the UK to be $16,270 and $36,240, respectively. In other comparative terms, 43rd and 16th respectively, in world wealth league tables. However, total expendature on health per head in 2009 was 3.4% of total GDP for Libya, as compared to the UK's 9.3% expenditure; a three fold difference (appendix 2). WHO figures highlight 3 times fewer doctors and five times fewer nurses and midwives in Libya, as compared to the UK.

Discussion with the Libyan radiology consultant, revealed that advanced radiological techniques such as those used routinely in the UK, have only limited availability and are largely dependent on personal wealth. There are only four consultant radiologists in Bengazi the second largest city after Tripoli (population ~ 1 million) and CT scanners are available but most of the time they are in need of repair. When people are unwell they go straight to local hospitals and polyclinics, primary care and GPs are not the norm. Primary, secondary and tertiary prevention schemes and approaches are not widely employed to improve health. Government approaches of stopping the sale of needles and syringes to control the countries drug problem (in addition to major immigrations from Sub-Saharan Africa) are believed to underlie the vast increase in HIV/AIDS prevalence currently being experienced. Plain X ray films are routinely used for assessing trauma, infection and cancer, however, follow up CT/MRI scans are not employed/available to confirm stroke, pulmonary embolism, deep vein thrombosis, cancer staging, or advanced lung disease. Doctors treat based on clinical presentation, best-guess and trial and error treatment approaches. For wealthy Libyans it is common practise to travel to neighbouring states of Egypt and Tunisia, where imaging facilities in the best hospitals are on par with those available in the UK.

Q3:- The diagnostic capabilities of Ultrasound methods in the diagnosis of orthopaedic, cardiorespiratory, gastrointestinal and genitourinary illnesses.

The range of applications for ultrasound scanning (USS) is vast, because modern machines can generate clear high-resolution images, it is non-invasive and is rapidly accessible. However, I have learnt that skilled and experienced (many years) operators are required to ensure correct diagnosis and avoid interpretation errors. This six week elective has revealed to me that efficient scanning requires a great deal of clinical knowledge, knowing what to look for on the images (based on the presenting symptoms on the request form), as well as, the pathological processes that may be at work. As important, is a deep understanding of equipment and regular new developments.

Whilst present I attended a range of different specialist clinics and observed (and often performed) the following applications.

*Abdominal USS:- First line investigation looking for problems or deformities in the abdominal aorta (i.e aneurysm screening), liver, stomach, gall bladder, hepatobilary tree, kidney, ureters, bladder (i.e. KUB), pancreas, spleen, lymph nodes, prostate, ovary, uterus, hernias and surface lumps.

*Neck/Vascular USS:- First line investigation looking for problems in the thyroid, lump identification, carotid arteries (i.e. stenosis or atheromas), deep/superficial veins and arteries in the extremities, looking for deep vein thrombi (DVT) or peripheral arterial disease, and vascular bypass repair assessment.

*Cardiac USS:- Transthoracic and trans-oesophageal types were observed. First line investigation looking for size and shape of the heart, location of the site and size of areas of myocardial damage, damage to valves and detection of abnormal blood flow patterns, assessment of coronary heart disease severity, pericardial disease and the structure and pathology in major inflow and outflow vessels.

* Musculoskeletal USS:- First line investigation for soft tissues (often combined with plain X-ray films (hard tissues 'bones') looking for problems or deformities in: ligament/tendons/muscle tears particularly in shoulders hips and the extremities, bleeding/fluid collections within muscles joints and bursa, observing hard and soft tissue changes in different locations to aid the identification/diagnosis (Dx) and treatment of different types of arthritis, Dx of superficial and deep soft tissue lumps, Dx USS-guided fluid aspirates, and therapeutic USS-guided steroid injections.

* Other USS uses not observed during placement but widely employed as first line investigations are, obstetric, ophthalmic, paediatric neurological and breast disease.

Q4:- Acquiring a working knowledge of ultrasound techniques to extend my clinical diagnostic and interventional abilities as a junior doctor.

This unique elective opportunity at a busy University hospital has taught me a great deal about the wide variety of USS and other imaging methods employed in hospital. Whilst here, I have achieved the following.

- A fuller understanding of the imaging methods employed in the diagnosis and treatment of common illnesses. I now have a better awareness of which is appropriate to aid Dx and treatment for different clinical presentations/suspicions.
- I have an understanding of the process of referral for a test and a radiological opinion.
- The hands-on scanning of dozens of patients under consultant supervision.
- Many hours per week spent 'one to one' with senior radiologists during their interpretation/reporting sessions for plain films, CT, MRI and USS has improved my clinical knowledge, and ability to analyse and report images.
- Looking at hundreds of normal and abnormal images has advanced my knowledge of anatomy and the characteristic changes that occur in disease.
- This elective has reaffirmed my interest to pursue such a career and has assisted me with a knowledge of the career pathway.

Thank you for reading

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