The Minutes of the meeting of the Derby Medical Society

Held on 19th January 2015 in the Derby Medical School

Apologies: None received

Welcome: Mr S Iftikhar, President

Minutes for the meeting 6th January 2015: Read by Mr S Milner, Junior Secretary, and approved.

Guest Lecture: Professor JF Robertson, University of Nottingham
"Detecting cancer early and detecting early cancer – simply semantics?"

Prof Robertson explained that it is impossible to make an argument for detecting cancer late. Current practice for detecting cancer 'early' is based on encouraging individuals to report symptoms early, and although often this just results in earlier diagnosis of a late stage cancer that has already metastasized. Cancer incidence is predicted to double by 2030, so there is an epidemic approaching!

Screening has been shown to reduce cancer mortality for some common cancers by about 20%, for example breast (mammography), lung (chest CT), and colon (faecal occult blood test and colonoscopy). The beneficial effect of screening applies only to at-risk groups rather than the whole population. However screening has not reduced mortality further because of various factors:

- Screening is more likely to pick up a late stage cancer that has already metastasized
- Education and acceptance of screening affect compliance
- The target population for screening does not cover all susceptible individuals
- Screening tests do not work as well in some groups of patients (eg mammography in younger women, because of the density of the breast tissue)

NICE guidelines for primary and secondary care screening and referral are complex, but have been distilled down into a computer algorithm that is the subject of current research – Family Health Risk Assessment Software (FaHRAS). This comprises a decision making tool – refer to secondary care or not – and a secondary care tool that will allow a family tree to be built and calculations made of 10 year and lifetime risk for breast cancer. This has led to 70% reduction in referrals to secondary care and 50% improvement in referrals of minority populations who often do not attend for screening. Risk assessment tools for lung and bowel cancer will be released during 2015.

Most tumour cells produce abnormal proteins, and these may stimulate the production of antibodies against them. This forms the potential basis for blood test screening for early stage cancer because of certain advantageous characteristics:

- Sensitivity – amplification occurs in vivo – lots of antibody for a small amount of antigen
- Specificity – antibodies are only generated in response to 'abnormal' antigens
- Use of multiple antibodies allows tumour profiling to produce a so-called 'cancer signature'

The first commercially available autoantibody test for lung cancer is currently under evaluation in a large trial in Scotland.

Auto-immunity research in cancer has a number of goals:

- Improving the technical platform of the tests
- Use for other tumour types
- The possibility of detecting auto-antibodies to cancer stem cells
- The use of auto-antibodies to deliver targeted therapy

The future of cancer treatment includes:

- Further work on autoantibodies
- Improvements in imaging to detect small, lymph node negative breast cancers
- Minimal surgery or treatment with stereotactic needle ablation
- Reduced emphasis on identifying the exact location of the cancer at screening as it may be treatable with drugs, targeted therapies or vaccines that do not need anatomical localization to work
- An increasing role for General Practice, prioritizing diagnosis and treatment of early cancer long before it is symptomatic.

Questions included:

- The potential for 'magic bullet' treatment based on auto-antibodies
- The role of national research database such as UK Biobank in cancer research
- The role of IT in Primary care
- The implications of incorrect test results for the individual patient and screening in general
- How to set the risk threshold for targeting primary prevention
- Whole genome sequencing to assess cancer risk
- How to improve uptake of screening
- The risk of over diagnosis of very small cancers that will never cause a problem during the individual's lifetime
- Whether there is political engagement with what is predicted to happen to cancer incidence in the next 20 years
- How to persuade groups of individuals who are averse to screening to engage with the process.

Vote of thanks: given by Ms Yasmin Wahedna

Register: signed by 23 members, 1 trainee, and 1 guest.

Next meeting: 3rd February, 2015

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SY Iftikhar, President