and might also lead to the identification of candidate genes for single nucleotide polymorphism (SNP) association studies. So far, most of the SNP association studies reported have been limited by the inclusion of a small number of investigated genes and low numbers of patients with different kinds of normal tissue toxicity. Future genetic association studies will be equally impeded by the difficulties in identifying relevant candidate genes, characterising well-defined clinical and biological phenotypes, and handling of the many confounding factors. International collaborations to assemble appropriate cohorts and technological developments (like the ESTRO GENEPI project) will hopefully lead to the identification of potential markers and assays, and validation of genetic markers through the use of candidate gene approaches and whole genome association studies.

Scientific Symposium (Mon, 21 Sep, 16:15−18:15)
After cancer therapy, prevention and promotion

64 INVITED

Optimal approaches to post treatment recovery: multidisciplinary team working

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Most survivors of adult cancers will not experience serious long term effects of cancer treatment but even with the best modern surgery, radiotherapy, hormone and biological treatments, it is not possible to cure cancer without the risk of damage to normal tissues.

In the UK alone it is estimated that there are currently 500,000 people experiencing a long term effect with an adverse effect on health and well being.

Some problems start during treatment and resolve within a few weeks or months, others begin during treatment and persist, still others may not appear until months or years later. This long time frame offers challenges to characterizing populations with particular needs, describing and populating care pathways and developing the teams with the competency to respond to different levels of need. There are challenges in supporting and educating primary care, both to detect and manage new chronic survivorship conditions and to recognize the increased incidence and severity of common chronic conditions (e.g. cardiovascular disease, diabetes and osteoporosis). Establishing and testing specialist multidisciplinary services for those with the most severe complex multi organ effects is particularly difficult in the current financial climate. Testing through the UK NCRI consequences of cancer treatment workstream has suggested some early learning.

65 INVITED

Exercise for disease prevention and health promotion in cancer survivors

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Background: The transition from primary cancer treatment to survivorship can be a challenging one marked by chronic and late effects such as functional limitations, fatigue, psychosocial distress, poor quality of life (QoL), weight gain, disease recurrence, and increased risk of other chronic diseases. These challenges have generated interest in behavioral strategies that might improve QoL, reduce the risk of disease recurrence, and extend survival in cancer survivors. One lifestyle factor that has received significant research attention is exercise or physical activity (PA). The purpose of this presentation is to provide an overview of research examining the effects of PA on supportive care and disease endpoints in cancer survivors that have completed primary treatments.

Materials and Methods: An overview of the literature of previous exercise intervention trials and observational studies conducted during the survivorship phase.

Results: Several recent meta-analysis have summarized the research on PA and supportive care endpoints in cancer survivors. These systematic reviews have reported favorable effects of PA interventions on physical fitness, quality of life, fatigue, and psychosocial outcomes. Interestingly, these reviews have observed that the effects of PA interventions on supportive care endpoints may be larger during the survivorship phase compared with the adjuvant treatment phase. This finding is important given that 50% of cancer survivors indicate that they would prefer to start a PA program after they have completed their primary treatments. Most studies to date have focused on breast cancer survivors, however, several recent observational studies using cross-sectional designs have reported positive associations between PA and QoL in understudied cancer survivor groups such as multiple myeloma, brain, ovarian, endometrial, bladder, colorectal, lung, and non-Hodgkin lymphoma but few randomized trials have been conducted in these groups. Within the last five years, researchers have begun to examine the association between postdiagnosis PA and disease endpoints in cancer survivors. Several recent large epidemiologic studies have shown that higher levels of PA are associated with a lower risk of disease recurrence, cancer-specific mortality, and longer survival in breast and colon cancer survivors. Nevertheless, all of the studies to date are based on observational data.

Conclusions: Overall, research indicates that PA interventions are safe and feasible for several cancer survivor groups and result in favorable improvements in physical fitness, QoL, fatigue, and psychosocial outcomes. More recently, prospective observational studies have provided evidence for an association between PA and disease endpoints but the causal role of PA on disease outcomes has not been established. In Canada and Australia, we have launched the Colon Health and Life-Long Exercise Change (CHALLENGE) trial, which is a multinational, multicenter randomized controlled trial designed to determine the effects of a 3 year structured PA intervention on disease-free survival in stage II and III colon cancer survivors who have completed adjuvant therapy within the previous 2−6 months. If this research confirms that PA improves disease-free survival in colon cancer survivors, there will be a strong case for implementing PA programs in the cancer setting to improve both QoL and disease outcomes.

66 INVITED

Assessment of young adult survivors needs: building an evidence-based late effects service

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There is now strong evidence from late mortality and morbidity studies to support the establishment of late effects services for childhood, adolescent and young adult cancer survivors. The requirements of the service are more difficult to determine. Cancer survivor's needs change over time. This is influenced by at least two factors. Firstly cancer determined factors like the patients age at diagnosis, the treatment received, the interval from end of treatment, and the natural history of late sequelae. Secondly the age of the survivor at follow-up, whether still a child, adolescence or adult and their expectations.

The aim of a late effects service is to enable the survivor to reach their maximum potential in all aspects of a multidimensional quality of life. To enable this to occur, input is important from multidisciplinary teams, survivors, their families and the community. From a medical perspective the aims of follow-up are to detect late effects early and treat as necessary. To educate survivors regarding self management to help decrease the effects of treatment. The degree of input from health care professionals varies enormously from minimal follow-up to hospital based multispecialist clinics depending on the risk and type of late sequelae. The provision of care needs to be flexible and individualised for each survivor.

Assessment of needs must involve survivors. Reports from focus group work with survivors have all highlighted the need for comprehensible information regarding late effects of treatment from knowledgeable health care professionals with good communication skills. They often state that they wish to be in control of their follow-up care but are aware that their involvement with professionals will vary. They want the ability to make contact with a key worker in the late effects service as required and for many it is important to move on in their lives and leave their medical history behind.

The evidence for the need of a late effects service is present but to date there are no studies on the cost benefits of such a service. More research is needed to assess different models of care and to determine the effects of new treatments.

67 INVITED

Managing late effects following haematological malignancy and BMT

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Background: More than 40,000 haematopoietic stem cell transplants (HSCTs) are performed worldwide each year and with improvement in technology and care more patients now survive. However there are late complications that can cause substantial morbidity. Furthermore HSCT poses significant challenges to the surviving patient's longer-term adjustment due to the frequent, ongoing presence of treatment late effects and vulnerabilities. Late effects include chronic Graft versus Host Disease (cGvHD), immune deficiency, lung, liver, cardiac, endocrine, dental and ocular effects, sexual dysfunction, osteoporosis, hypercholesteraemia, secondary malignancies and late graft failure. Functionally, patients experience significant fatigue and weakness and consequent difficulties with resuming work, family and leisure activities. Psychologically, recovering from the