SENATE COMMITTEE INQUIRY: GYNAECOLOGICAL CANCER
Submission from the Cancer Research Program, Garvan Institute of Medical Research, Sydney
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Gynaecological Cancer in Australia –Research Funding

1. Ovarian Cancer – a research priority

Gynaecological cancer – incidence and mortality

The most common gynaecological cancers are those of the endometrium, ovary and cervix. Endometrial cancer is the most common gynaecological cancer in Australia. Fortunately, most endometrial cancers are diagnosed at an early stage and have a good prognosis. A similar situation exists for cervical cancer, where the introduction of a national screening program for pre-malignant and early cancerous changes in the cervix has dramatically reduced the number of patients diagnosed with advanced disease and therefore a poor prognosis. Indeed, an 80% reduction in mortality from endometrial (uterine) and cervical cancer has occurred in Australia over the past century (Source: "Mortality over the twentieth century in Australia: trends and patterns in major causes of death", AIHW, 2006). Moreover, in the case of cervical cancer, the recent Australian discovery of a prophylactic vaccine that can protect against development of pre-cancerous disease should lead to further major reductions in the incidence of cervical cancer in future years. These data demonstrate how research has had a profound impact on (gynaecological) cancer incidence and survival.

Ovarian Cancer – incidence and mortality

Ovarian cancer is the second most common gynaecological cancer in Australia, with 1300 new cases reported annually. It is the primary cause of death from gynaecological malignancies in Australia, with less than 40% of women still alive five years after initial diagnosis. This translates to approximately 850 women who die of ovarian cancer every year in Australia. This five-year overall survival rate is approximately half that of other common cancers of women, including breast (84%), endometrial (82%) and cervical cancer (75%) (Source: Cancer Survival in Australia, 2001; AIHW & AACR, 2002).

Early detection of ovarian cancer

The poor prognosis associated with ovarian cancer is largely due to the majority of women presenting with advanced or disseminated disease, which in turn is due to a paucity of specific symptoms and the lack of a sensitive diagnostic test for early stage disease, which, in sharp contrast to advanced ovarian cancer, has a 90-95% survival rate. **Hence early detection is critical to improving the outcome for women with ovarian cancer.** Moreover, an early detection test that would be applicable to a screening program for high-risk women (for example age, menopausal status, family history, genetic predisposition) is highly desirable, the success of which in dramatically improving survival is demonstrated by the national screening programs for breast and cervical cancers.

Treatment of ovarian cancer

In the absence of an early detection test, the ability to better treat women with advanced disease remains the first step in improving the poor outcome of women with ovarian

cancer. The current treatment procedure for most women diagnosed with advanced stage ovarian cancer is surgery and chemotherapy. Despite this aggressive treatment, a large proportion of patients will suffer a relapse, which is essentially incurable. Hence, there is also an urgent need for more effective and specific targeted drugs against ovarian cancer.

Biology of ovarian cancer

Despite its significance, ovarian cancer remains among the least well understood of all the major human cancers. **Priority funding for research into the causes and mechanisms of disease development and progression, a necessary prerequisite for the identification of new and effective ways to diagnose and treat ovarian cancer, and translation of those discoveries to patients, is key to a better outcome for women with ovarian cancer.** With advances in research and technology that have accelerated our knowledge of cancer mechanisms, including importantly the sequencing of the human genome, it is scientifically feasible that diagnostic and therapeutic markers of ovarian cancer will be found, given enough international resources and expertise.

2. Strength and expertise in ovarian cancer in Australia

Australia has several research centres of excellence with internationally-recognised programs in cancer research. Recognised successes and strengths include: the molecular basis of cancer pathogenesis; discovery approaches for new diagnostic, prognostic and therapeutic markers; the discovery and application of new technologies for cancer detection and treatment; and the translation of basic research into clinical applications. As each of these areas has direct or indirect application to ovarian cancer, Australia has the scientific capacity to significantly contribute to advances in ovarian cancer research.

There are currently few dedicated ovarian cancer research groups in Australia. Some of these utilise the combined expertise of gynaecological cancer specialists and cancer research scientists (but these are small programs and the combined effort small by international standards). These collaborations ensure that critical and relevant research questions are followed, and realistic solutions with genuine potential benefits to patients are designed. **Programs of research that utilise this type of multi-disciplinary approach should be encouraged and supported.**

One example of this type of approach is the collaboration between the Royal Hospital for Women, Sydney and the Cancer Research Program of the Garvan Institute for Medical Research. The Gynaecological Cancer Centre (GCC) at the Royal Hospital for Women is an international centre of excellence with state-of-the art facilities, and is one of the major treatment centres for gynaecological cancer patients in NSW. The Director of the GCC is Professor Neville Hacker, a gynaecological cancer specialist with a world-wide reputation as one of the true pioneers of gynaecological cancer treatment, including ovarian cancer. The Cancer Research Program of the Garvan Institute for Medical Research, led by Professor Robert Sutherland, is an internationally recognised and highly successful Program with expertise in hormonally-regulated cancers including breast, prostate and ovarian cancer. One of the major focuses of the Program is the discovery of new biomarkers and therapeutic targets for cancer diagnosis and treatment, and the translation of those research findings to patients.

Using the combined resources of the GCC and the Cancer Research Program, The Ovarian Cancer Project, headed by Dr Philippa O'Brien, has amassed one of Australia's largest and most comprehensive database and tissue collections of ovarian cancer patients. Using modern genetic technology available at the Garvan Institute, this important resource has allowed the identification of genetic changes underlying ovarian cancer, a first step in understanding how the disease develops, and a prerequisite to developing new diagnostic tests and treatments. Moreover, this type of close interaction between scientists and clinicians allows the evaluation of the value of laboratory discoveries in real benefits for patients, and when appropriate, the rapid translation of laboratory findings back to the patient, including early phase clinical trials. Similar collaborations between clinical experts and research expertise exist in relatively few other research institutes and universities in Australia.

3. Funding for gynaecological cancer research in Australia

There is currently no specific targeted Commonwealth funding for gynaecological cancer research in Australia. The National Health and Medical Research Council (NH&MRC) is the major source of government-funded research in Australia, and the Australian Government has shown its commitment to an investment in health and medical research with a major increase in NH&MRC grant funding over the next four years. The allocation of NH&MRC resources is based on scientific merit, and there are no additional resources for specific disease initiatives.

A number of charities exist in Australia that specifically fund cancer research, including Cure Cancer Australia, The Australian Cancer Research Foundation, and the Cancer Institute NSW; however, none of these charities specifically target gynaecological cancers.

A significant proportion of ovarian cancer research in Australia is actually funded by small charities that have been set up by relatives of women who have died from ovarian cancer or other concerned individuals, and whom recognised the urgent need for funding in order to be able to help women with ovarian cancer. These charities exclusively fund individual laboratories, such as the Gynaecological Oncology (GO) Fund (www.gofund.org.au), who support the collaboration between the Gynaecological Cancer Centre at the Royal Hospital for Women and the Garvan Institute of Medical Research, Sydney; and the Ovarian Cancer Research Foundation (www.ocrf.com.au) who fund a collaboration between the Gynaecological Oncology Department, Monash Medical Centre, and Prince Henry's Institute for Medical Research, Melbourne. Although this type of funding is vital and of great value, such resources cannot support major programs of international standing. The additional availability of specifically-targeted funding would ensure that the best possible research in Australia with clear clinical benefits for women with ovarian cancer was supported.

We support the premise of targeted Government funding for high priority disease initiatives, such as ovarian cancer. We suggest that the optimal way to administer such a resource would be via existing organisations, including but not necessarily limited to the NH&MRC. This would reduce infrastructure costs associated with the formation of a new organisation. Such funding should preferably be additional to resources currently committed to health and medical research in Australia. Specific disease initiatives could also be supported via the new government-allocated funds to the National Health and

Medical Research Fellowship Scheme, for example by identifying priority areas for recipients of Senior Research Fellowships.

There are examples in other countries of government programs that support dedicated resources for cancer, for example, the US Department of Defence Congressionally Directed Medical Research Programs (http://cdmrp.army.mil), which target and administer research funding for cancer research, including breast and ovarian cancer. The Ovarian Cancer Program of the CDMRP has awarded US$91.7M toward ovarian cancer research since 1997, with a budget of US$10M for 2006. Their Mission is to "promote innovative, integrated, multidisciplinary research efforts that will lead to a better understanding, detection, diagnosis, prevention, and control of ovarian cancer". The CDMRP resources are available to international researchers; indeed, the Garvan Cancer Program has successfully been awarded funding for several research projects in breast cancer. However, the majority of funding is reserved for researchers based in the USA.

The Australian Government recognises that investment in medical research provides long-term economic and social returns to the community (Source: Investment Review of Health and Medical Research, NH&MRC, December 2004). Hence dedicated resources for ovarian cancer research will likely lead to a reduction in cancer expenditure for ovarian cancer patients in the future.

Summary of Recommendations

- Specific dedicated Commonwealth funding for gynaecological cancer research, in particular ovarian cancer, focusing on research areas with clear foreseeable benefits for patients;

- Disease-specific initiatives should preferably be additional to current funding for health and medical research in Australia.

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