Student: Olivia Smeele

Project: How do the prognostic factors of endometrial cancer vary in New Zealand women of different ethnicity?

Supervisors: Associate Professor Peter Sykes and Dr Bryony Simcock

Sponsor: Cancer Society of New Zealand Canterbury/West Coast Division

Introduction:

Endometrial cancer is the most common gynaecological cancer in New Zealand women and the incidence is increasing. Endometrial cancer most commonly affects post-menopausal women, with 80% of all endometrial cancers attributed to excess oestrogen. This includes conditions such as obesity, where there are increased levels of oestrogen produced. The main determinants of prognosis are age, stage (how far the cancer has spread), morphology (cell type) and grade (how quickly a tumour is likely to grow/spread). Older age, more aggressive morphology, advanced stage and/or grade are associated with a poor prognosis.

In New Zealand it is recommended that all women with gynaecological cancer are discussed at a Multi-disciplinary Meeting (MDM) to ensure a consistent multidisciplinary approach to treatment for all New Zealand women. Three main centres operate gynaecology cancer MDMs, Auckland, Wellington and Christchurch. Dunedin also operates a MDM in collaboration with Christchurch. Outcome data for New Zealand women with endometrial cancer is sparse, national survival data is published by the cancer registry. However, this is limited due to missing details such as cancer stage for a significant number of patients. It is believed staging data collected from MDM data collections will be more complete and accurate than that collected via the Cancer Registry. Maori and Pacific Island women have been noted to have an increased risk of and mortality from endometrial cancer. It is currently unclear what factors drive this difference. An understanding of these differences are imperative in informing future reporting and hence treatment.

Aim:

1. Determine overall and cancer-specific 3 year survival for women reviewed at MDM meetings in Auckland, Wellington, Christchurch and Dunedin
2. Investigate the independent effect of ethnicity on endometrial cancer survival
3. Investigate the case mix difference between Auckland, Wellington, Christchurch and Dunedin that may result in different outcomes between centres.

Method:

Existing MDM databases from Auckland, Wellington, Christchurch and Dunedin were searched for patients with newly diagnosed endometrial cancer between 01/01/2009 and 31/12/2011. Data collected included, DHB location, ethnicity, age at diagnosis, date of diagnosis, date of death, morphology, grade and stage at diagnosis. Patients with known synchronous cancers were excluded. For these women, ethnicity, deprivation score, age at diagnosis, date of diagnosis, date of death, morphology and grade was collected from the New Zealand Cancer Registry.

Date and cause of death was collected from the New Zealand Mortality Collection. The three data sets (MDM, New Zealand Cancer Registry and New Zealand Mortality Collection) were matched by NHI. Where there was missing data or discrepancies between the datasets, patient's notes were accessed. The data was analysed with the help of a statistician using RStudio.

Results:
1341 patients were identified to have been diagnosed with endometrial cancer in New Zealand between 2009-2011. On average this is 450 new cases per year. Overall survival at 3 years was 79%. The survival rate at 3 years did not vary significantly by location. Maori were 1.5 times more likely to die within 3 years compared to New Zealand European. But no difference was shown in risk of dying within 3 years between New Zealand European and Pacific Island (PI) or Other ethnicities. Cause of death data is not yet available and therefore cancer-specific survival cannot be determined. Maori showed no difference to New Zealand Europeans in terms of the stage, grade or morphology of cancer. Pacific Islanders however, were 2.4 times more likely to have a stage 4 cancer at diagnosis but no difference in the grade or morphology. The average age in years at diagnosis was 65 for New Zealand European, 59 for Maori, 54 for Pacific Islanders and 64 for Other ethnicities, 60 for Auckland, 65 for Southern and 64 for Wellington. When investigating the case mix, Auckland had 36% New Zealand European, 17% Maori, 28% Pacific Islanders and 19% Other. In contrast, Southern had 82% New Zealand European, 3% Maori, 2% Pacific Islanders and 14% Other. Wellington had 59% New Zealand European, 16% Maori, 12% Pacific Islanders and 13% Other. Furthermore, 50% of Auckland's cohort had a deprivation score greater than 8 compared to southern where 50% had a deprivation score less than 4.

Conclusion:
It has been shown that there is no difference in survival rates or risk of dying within 3 years between locations. This may be due to an older population in Southern and Wellington counter balancing the higher proportion of Maori in Auckland. Ethnicity however, was shown to have an impact on survival with Maori having a higher risk of death at 3 years compared to New Zealand Europeans. The cause of this disparity is likely to be multifactorial. However, findings show the stage, grade and morphology of Maori are not significantly different from New Zealand European. Therefore, these factors are unlikely to impact the difference in survival. A younger age at diagnosis is associated with a more favourable prognosis. Thus, it is concerning that Maori present at a younger age yet are more likely to die from their disease.

Further analysis using cause of death data will determine if Maori are more likely to die from causes other than endometrial cancer. It is postulated Maori more commonly die from conditions such as heart disease. Risk factors include obesity, diabetes and high blood pressure, which are known to be more prevalent in Maori. If Maori are more commonly dying from other causes, action needs to be taken in addressing treatment of co-morbid conditions at the time of diagnosis. Determining cancer-specific survival will give a clearer picture of existing differences in survival. Understanding why differences in outcomes occur between ethnicities will aid future reporting and care of women diagnosed with endometrial cancer.