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Thesis:

Cross-sectional and prospective cohort studies to determine whether there is excess morbidity and mortality from CVD among cancer survivors and to examine the correlation with cancer therapy and shared risk factors

Supervisor:

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Abstract:

Background: The improvement in recent years in the early detection and treatment of cancer has resulted in a significant increase in the rate and number of cancer survivors, who live at least five years after their first cancer diagnosis. (Approximately 250,000 survivors living in Israel today). There is an active discussion in the current scientific literature on the issue of the survivors' health status after recovery from cancer, and the kind of health services that should be provided to them for their unique health needs. The anti-cancer treatments they received, as well as the possible shared behavioral, physiological and mental risk factors for cardiovascular diseases and cancer, are likely to put cancer survivors at an increased risk for morbidity and mortality from cardiovascular diseases. Despite the fact that In Israel, and other countries, specialized health services are being established to prevent cardiovascular morbidity and mortality among cancer survivors, the scientific basis for such services remains very limited. Studies of the multiple causes of death among cancer survivors and possible shared risk factors for cancer and cardiovascular disease are needed to determine policies for additional health services for this growing population.

Objectives: (1) To examine the distribution of multiple causes of death among cancer survivors compared to the general population. (2) To examine the correlation between changes that occurred over the years in the treatment regimens for cancer, and changes in the distribution of multiple causes of death of cancer survivors. (3) To identify and characterize shared physiological behavioral and mental risk factors, for cancer morbidity and cardiovascular morbidity and mortality.

Hypotheses: (1) The age standardized cardiovascular death rates will be higher in cancer survivors compared to people without cancer. (2) In correlation with changes in treatment, the age standardized cardiovascular death rates will be higher in cancer survivors that died in 1999 and were treated prior to that year, compared to cancer survivors that were treated after 1999 and died in 2012. (3) Shared risk factors will account for a considerable part of the risk of cardiovascular morbidity among cancer survivors. (4) A history of cancer in itself will be identified as an independent risk factor for cardiovascular disease.

Methods: The research will be divided into four parts: In the first two parts, cross-sectional studies will be performed. The study population for those parts will include all Israelis who died during the years 1999 and 2012, in both of which the multiple causes of death were recorded in the national Israeli death registry. The multiple causes of death of the deceased will be examined. The data will be merged with the National Cancer Registration (NCR) data, in order to compare the multiple causes of death of people that appear in the NCR and have stayed alive at least five years after their first cancer diagnosis (cancer survivors), and people who do not appear in the NCR, (did not have cancer), in each of the examined years. A second comparison will examine the presence of cardiovascular diseases within the multiple causes of death of cancer survivors in the two examined years, in order to identify correlations between changes

that occurred over the years in cancer treatments, and trends in the distribution of causes of death of people who received them. Those research parts will require working in the research room in the Central Bureau of Statistics (CBS) in Jerusalem, on large data files that will be received from the CBS and the NCR.

In the other two parts of the research, prospective cohort studies will be performed. One will be a prospective cohort study based on data collected for the Israeli CORDIS study. During the Israeli CORDIS study, (1985-1989), data on risk factors for cardiovascular mortality were collected from 7516 industry workers in Israel. We will conduct a follow-up of 25 years on the participants' cancer morbidity and causes of death. In this part of the research, shared risk factors for cancer morbidity and cardiovascular mortality will be identified, and cancer morbidity will be examined as an independent risk factor for cardiovascular mortality.

The second prospective cohort study (fourth part of the research) will be based on data collected for the Women's Health Initiative (WHI) study in the U.S. The data collected during the WHI study include information on the most common causes of death, disability and quality of life impairment among post-menopausal women. Data were collected from 161,808 postmenopausal women, and included repeated measures over 16 years. In this part of the research, depression that appears after the diagnosis of cancer will be examined as a risk factor for cardiovascular morbidity and mortality.

About Noemie

Over the last eight years Noemie has been working in the academic arena, fulfilling different research and teaching assistant's positions.

During her professional experience period, Noemie has been involved in different researches and projects. Among them are: Hebrew text book editing, Field research

coordination, international conference organization, national recommendations building, professional reports and articles writing and many others.

Her main interest lies in risk factors and disease related outcomes (physical and psychological) that lead to chronic disease in cancer survivors; Big data analysis; and the effect of policy and other factors on the health of the population as a whole and women and children in particular.

As a PhD student in the School of Public Health, Noemie is researching the leading multiple causes of death among cancer survivors, with an emphasis on cardiovascular diseases and their potential causes in this sub-population