Statistical Analysis Plan

This document describes the statistical analyses that will be used to evaluate the study: "Person-centred Support for Women After Treatment for Gynaecological Cancer" at www.ClinicalTrials.gov (NCT01784406). It follows the description at www.ClinicalTrials.gov closely.

Inclusion criteria:

- Women only surgically treated for cervix, ovarian (including borderline tumors), endometrial or vulva cancer, who attend follow up at the Gynecological Department at The University Hospital Rigshospitalet in Copenhagen.
- The women should read, write, and understand the Danish language.

Exclusion criteria:

- Known recurrence.
- Participation in the preliminary pilot study.
- Health related problems both physical and psychological that prevent participation. For example cognitive impairment, or patients with psychiatric diseases that is estimated to require nurses with competences within the psychiatric specialty.

Exposure

The included women are randomized to either the control or intervention group at baseline stratified by the follow-up duration and initial type of cancer diagnosis.

Populations

Intention-to-treat population: All randomized patients except those who demand deletion of all data. All the outcomes below will be analyzed in this population.
Per protocol population: All randomized patients except those who never received the intervention. In this population only the primary outcome will be analyzed.

Outcomes

Primary outcome: Quality of life measured by the scale Quality of life - Cancer Survivors (QOL-CS) (Time Frame: Nine months after randomisation)

Secondary outcomes:

1. Quality of Life measured by the scale Quality of Life Cancer Survivors - (QOL-CS)(Time frame: Three months after randomisation).
2. Changes in Quality of life in the two groups (Time frame: Nine months) Quality of life at nine months compared to the quality of life at the time of randomisation.
3. Positive and negative impact of cancer measured by Impact of Cancer version 2 (IOCv2) including evaluation of all subscales (Time frame: Three and nine months after randomisation).
4. Self-esteem measured by Rosenberg's Self Esteem Scale (Time frame: Three and nine months after randomisation).
5. Anxiety and depression measured by Hospital Anxiety and Depression Scale (HADS) (Time frame: Three and nine months from randomisation). Also used as screening instrument at baseline.
6. Autonomy-supportive relationship between patient and health care professionals measured by Health Care Climate Questionnaire (HCCQ) (Time frame: Three and nine months from randomisation).
7. Distress measured by Distress Thermometer (DT) (Time frame: Three and nine months from randomisation) Also used as screening instrument at baseline.
8. Comparison of DT against HADS as screening instrument for anxiety and depression in relation to the number of conversations actually received during the intervention.
9. Evaluation of self-experienced ability to monitor symptoms of recurrence (Time frame: Three and nine months).

General Statistical Considerations

The following general principles are used in the analyses of the study:

- All statistical tests will be parametric assuming normally distributed sample means, i.e. two-sample and paired t-tests.
- For data deviating severely from normality non-parametric alternatives, i.e. the Sign-test and the Wilcoxon rank-sum test will be applied as sensitivity analysis.

- To detect the presence of outliers we apply the Rosner's test of outliers with $\alpha = 0.05$ as significance level. The identified outliers will be removed from the analyses after careful considerations.
- We expect very few missing observations and thus we will base the analysis on complete cases only. However, if more than 5% of the observations is missing for the primary outcome *multiple imputation* will be applied.
- All results will be generated such that they are reproducible. The code will be available from annduu@cancer.dk.
- Results are reported as differences on an absolute scale (or on a relative scale when the data are transformed) with 95% confidence intervals and p-values. To take into account the effect of multiple testing we report the Bonferroni corrected significance level.

Specific Statistical Analyses

Primary outcome:

We plan to evaluate the primary outcome with a two-sample test between the scores at nine months after randomisation for the control and intervention group. The four subscales of QOL-CS (physical, psychological, social, and spiritual well-being) are evaluated separately also with a two-sample t-test between the two groups at nine months.

Secondary outcomes:

1. *Quality of Life measured by QOL-CS.* We plan to evaluate this outcome with a two-sample test between the scores at three months after randomisation for the control and intervention group. The four subscales of QOL-CS (physical, psychological, social, and spiritual well-being) are evaluated separately also with a two-sample t-test between the two groups at three nine months.
2. *Changes in quality of life QOL-CS within the two groups.* Quality of life at nine months minus the quality of life at the time of randomisation. This outcome will be evaluated with a paired t-test within each group.
3. *Positive and negative impact of cancer measured by IOCv2.* This scale consists of two scales: positive and negative impact scales each consisting of four subscales. Further, three additional subscales related to employment and partnership are included. The overall measure and all sub measures will be evaluated with a two-sample t-test between the two groups at three and nine months after randomisation, respectively.
4. *Self-esteem measured by Rosenberg's Self Esteem Scale.* This outcome will be evaluated with a two-sample t-test between the two groups at three and nine months after randomisation, respectively.

5. *Anxiety and depression measured by HADS.* This scale consists of two subscales - an anxiety scale and a depression scale. The overall measure and the two sub measures will be evaluated with the two-sample t-tests between the two groups at three and nine months after randomisation, respectively.

6. *Autonomy-supportive relationship between patient and health care professionals measured by HCCQ.* The women in the intervention group were asked to fill out this questionnaire for both their last normal control visit and their intervention visits. The women in the control group filled out the questionnaire for their last normal control visit only. The following outcomes are evaluated from these questionnaires:

    - Comparison of scores related to the last normal control visit between the control and intervention group at three and nine months. This will be evaluated with two-sample t-tests.
    - Comparison of the scores related to the last normal control visit at three and nine months in the control and intervention group, respectively. We will evaluate this with paired t-tests.
    - Comparison of the scores related to the last normal control visit and intervention visits within the intervention group at three and nine months, respectively. Evaluation will be done with paired t-tests.

7. *Distress measured by DT.* This measure is evaluated at three and nine months after randomisation with two-sample tests of the means between the two groups.

8. *Comparison of DT against HADS as screening instrument for anxiety and depression.* The screening capability of DT will be assessed against HADS scale (overall and the two subscales) by receiver operating curves and estimation of the positive and negative predictive value for all possible cut-off scores on the DT scale. This will be done for baseline scores in both groups.

9. *Evaluation of self-experienced ability to monitor symptoms of recurrence.* The women are asked to assess their ability to distinguish symptoms of side effect from symptoms of recurrence on a scale from 0-10. This measure is evaluated at three and nine months, respectively with two-sample t-tests of the means between the two groups.

10. Single items are reported in contingency tables.