EDUCATION SECTION

MODEL ANSWER FOR CRITICAL REVIEW PAPER: CONJOINT EXAMINATION FOR MALAYSIAN MASTER OF MEDICINE (PSYCHIATRY) AND MPM JUNE 2012

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Abstract

Objective: **This paper aims to discuss the answers to Review Paper Exam for the Malaysian Master of Medicine (Psychiatry) May 2012 theory examination. The paper studied the psychotropic prescription practice in cancer patients using a health care registration database.** *Methods:* **One of the papers presented during the journal club presentation was picked-up for evaluation of student's critical appraisal.** *Results:* **Model answers were provided at the end of the Critical Review Paper.** *Conclusion***: This review paper evaluates students' understanding and critical thinking on the topic of Psychotropic Drugs in cancer patients. This paper may serve as a guideline to teach students how to critically appraise topic related to psychiatry.** *ASEAN Journal of Psychiatry, Vol. 14 (1): January – June 2013: XX XX.*

TITLE OF PAPER: "Prescription Patterns for Psychotropic Drugs in Cancer Patients; A Large Population Study in the Netherlands."
(*Psycho-Oncology 2012 Early View*)

Objective

To study the psychotropic prescription practice in cancer patients using a population-based health care registration database. The prescription rates of three common psychotropic drugs among cancer patients, namely benzodiazepines, antidepressants and antipsychotic drugs were examined. It also investigate each drug class separately prescription trends after the cancer diagnosis is set and in the terminal phase of life.

Methods

Data

The data used in this study were extracted from database of a main health insurance companies in the Netherlands. The database contains demographic and health care consumption data of the clients as well as extensive records of the pharmaceutical prescriptions. In the Netherlands, all inhabitants are by law obliged to have medical insurance coverage. The compulsory health-care insures covers all care for cancer patients and all psychotropic medication.

Cancer and control cases

Study subjects were identified in the database between January 1st, 2006 and December 31st, 2008. Selection was based on the presence of a diagnostic-treatment combination-code (In Dutch: DBC-codes) for cancer (including non-

melanoma skin cancer). In the Dutch medical system all cancer patients consult an oncologist. All diagnostic and treatment activities of these specialists will be paid by the insurance company. These activities are registered. Therefore in the period 1st Jan 2006 to 31st Dec 2008, all new cases of cancer were identified as cases in this study. Only cancer patients with complete follow up were included in the study (only allowed exit was death). In addition a random sample of control patients without cancer was taken in the same time period, matched by gender and age. Cancer cases were also determined by the date of diagnosis and - if applicable-, by date of death.

Variables
Drug prescriptions were recorded according to the Anatomical Therapeutic Chemical (ATC) classification system codes. The following ATC codes were included NO5B, N05C (benzodiazepine), N06A (antidepressant) and N05A (antipsychotic).

Psychotropic drug use was defined as at least one prescription of any of the psychotropic drugs during the study period. New user of each psychotropic drugs was defined as no use or use less than 30 defined daily dose (DDD)(assumed average dose per day) in the previous year. The numbers of new user among cancer patients in the 3 months after the cancer diagnosis and in the 3 months before death were calculated separately. Those who identified as new users will not be counted as new users again in the terminal stage.

The pre-existing psychiatric and medical conditions were identified using the prescription patterns among the index and control patients in the five years preceding diagnosis as proxy-indicator. Thus, psychiatric comorbidity was defined as the use of at least 90 DDD of psychotropic drugs in any of the five years before the diagnosis of cancer. For example patients diagnosed for cancer in 2006 are screened for psychotropics use from 2001-2005, while patients diagnosed in 2008 are screened for the period from 2003-2007. Similarly, the

presence of comorbid chronic medical conditions was identified using the proxy-indicator for any prescribed drugs starting with R03A, R03B, R03D for pulmonary disease, A10A, A10B for diabetes mellitus and C01A, C01B, C01D, C03, C07, C08, C09 for cardio-vascular disease. The use of more than 180 DDD of these drugs annually in 2005 of subsequent years was taken as a cut-off point.

Covariates
The following information about the cancer and control patients was gathered: age, gender, non-western immigrant and socioeconomic status. The age of the cancer patients was determined at the date of the cancer diagnosis. The age of the control group was taken at January 1st, 2006. Subpopulations according to cultural background were analysed separately. The first generation of non-western immigrants which consists of Moroccan, Turkish and Surinamese patients is registered in the AHD (Agis Health Database)= Insurace company database. The subsequent generations were identified by matching the surname and by visual control of the surnames. The socioeconomic status Socioeconomic status (SES) of the subjects was based on the postal code of the neighborhood. SES was dichotomised into subjects from deprived and non-deprived area.

Analyses
The prevalence of psychotropic use for the cancer and control group was calculated for the study period (January 1st, 2006 to December 31st, 2008). The number of psychotropic drugs used in the cancer and the control group was compared. A logistic regression model was used to analyze the determinants of psychotropic drugs use in cancer patients, reported in adjusted odds ratio's. The mean numbers of new users and average monthly use for each psychotropic drug for the users for the 3 months after the cancer diagnosis and 3 months before death were compared. All the tests were two sided at the alpha level of 0.05.

Results

Table 1. Baseline Characteristic of the Cancer Patients and Control Group.

	Cancer Patients (N= 113,887)	Control Group (121,395)
Age (SD)	60.45 (18.27)	58.90 (19.65)
Female (%)	71,293 (62.6)	75,265 (62.0)
Non Western Immigrant (%)	10,819 (9.5)	11,290 (9.3)
Deprived Area (%)	17,425 (15.3)	16,146 (13.3)

After removing cases with incomplete dataset and repeated cases, a total of 113,887 cancer patients and 121,395 control subjects were included in this study (Table 1).

As compared to patients without cancer, there was a significantly higher percentage of cancer patients was prescribed at least one psychotropic drug during the study period.

Co-prescription of one or two psychotropic drugs to patients with cancer was more frequent than in the control group (OR= 1.658, 95% CI=1.624-1.693). There were significantly more patients in the control groups with co-prescription of all three types of psychotropic drugs. (OR= 0.552, 95% CI= 0.542-0.562).

The chance of cancer patients being prescibed a psychotropic drug for the first time was higher in the terminal disease stage (3 months before death) as compared to the first 3 months after the cancer diagnosis, especially for antipsychotic. However, the average dose used was lower in the terminal stage for antidepressant and antipsychotic drugs. There was no difference in the average dose used for benzodiazepine in the two disease stages.

Table 2. Use of psychotropic drugs in cancer and control subjects, mean difference (95% CI).

	Cases N=113,887	Control N=121, 395	Crude OR (95% CI)	Adjusted OR (95% CI)
Any Drug	37450 (32.9)	25842 (21.3)	1.81 (1.78-1.85)	1.67 (1.64-1.71)
Benzodiazepine (%)	32,458 (28.5)	21,487 (17.7)	1.85 (1.81-1.88)	1.70 (1.67-1.74)
Antidepressant (%)	12,414 (10.9)	9,347 (7.7)	1.47 (1.43-1.51)	1.38 (1.34-1.42)
Antipsychotic (%)	5,353 (4.7)	3,278 (2.7)	1.77 (1.69-1.85)	1.70 (1.62-1.77)

Adjusted OR = Odds ratio adjusted for gender, immigrant status, neighborhood socio-economic status, age and premorbid chronic medical conditions (diabetic, cardiovascular and pulmonary conditions).
The presence of premorbid chronic medical condition is defined as the use of more than 180 DDD of the proxy-indicator medication in subsequent years from 2005 backwards to 2005.
The use of psychotropic drugs is defined as at least once prescription during the study period (2006-2008).

Questions ALL Questions (20 marks)

1. What is the study design? (2 marks)

A retrospective case- control study.

2. Give two advantages of this study design. (2 marks)

Save cost, save time, fewer subjects required, suitable for rare disease, can evaluate multiple exposures.

3. What is a good control? (2 marks)

A subject that have equal chance to be identified as a case, if develop the outcome of interest.

4. Please describe TWO (2) types of matching. (4 marks)

Group matching – based on proportions. Select a control group with certain characteristic identical to cases in the same proportion as it appeared in the cases.

Individual matching – for every individual case, a control is selected who is identical to the case on certain charateristics.

5. Please state the null hypothesis of the study (2 marks)

Comparison between cancer and control, there are equal rate of psychotropic drugs (benzodiazepine, antidepressant and antipsychotic) prescription.

6. Please interpret Table 2. (5 marks)

There was a significantly higher percentage of cancer patients was prescribed at least one psychotropic drug as compared to control.

Benzodiazepine was the most commonly prescribed psychotropic drug to cancer patients (28.5%).
The adjusted odds of benzodiazepine prescribed in cancer patients were 1.70 as compared to control.
Cancer patients were prescribed antidepressant drugs, with the adjusted odds of 1.47 compared to the control group.

Although the percentage of cancer patients with antipsychotic drugs prescriptions was relatively low (4.7%), it was significantly higher than in the control group. Adjusted odds is 1.70.

7. Please state THREE (3) limitations of this study. (3 marks)

The study period was restricted to the first three years after the diagnosis of cancer. Patients who received psychotropic prescription after the study period are not identified. This may underestimate the prescription rates in these patients.

The study on prescription in the terminal cancer phase was confined to the patients who deceased during the study period. These patients were mostly likely to be in advanced and more aggressive disease stages, resulting in a possible overestimation of prescription to all cancer patients.

Social and family support which may help the patients to cope with their psychological problem was not measured in this study.

Different types of psychotropic have their own safety and efficacy profile. The types of antidepressants, benzodiazepine and antipsychotics prescribed were not available in this study.

Clinnical data, such as cancer stage and physical disability were not documented in this study. These factors might confound the result in the analysis of psychotropic drugs prescription rates.

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