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Depressive disorder in the last phase of life in patients with cardiovascular disease, cancer, and COPD:

data from a 20-year follow-up period in general practice

Abstract

Background

Depression is assumed to be common in chronically ill patients during their last phase of life and is associated with poorer outcomes. The prevalence of depression is widely varying in previous studies due to the use of different terminology, classification, and assessment methods.

Aim

To explore the reported incidence of depressive disorder, as registered in the last phase of life of patients who died from cardiovascular disease, cancer or COPD, in a sample of primary care patients.

Design and setting

A historic cohort study, using a 20-year period registration database of medical records in four Dutch general practices (a dynamic population based on the Continuous Morbidity Registration database).

Method

Medical history of the sample cohort was analysed for the diagnosis of a new episode of depressive disorder and descriptive statistics were used.

Results

In total 982 patients were included, and 19 patients (1.9%) were diagnosed with a new depressive disorder in the last year of their life. The lifetime prevalence of depressive disorder in this sample was 8.2%.

Conclusion

The incidence of depressive disorder in the last phase of life is remarkably low in this study. These data were derived from actual patient care in general practice. Psychiatric diagnoses were made by GPs in the context of both patient needs and delivered care. A broader concept of depression in general practice is recommended to improve the diagnosis and treatment of mood disorders in patients in the last phase of life.

Keywords

cardiovascular disease; depression; epidemiology; cancer; COPD; palliative care; general practice; prevalence.

INTRODUCTION

Depression is common in patients during their last phase of life, and often encountered during a palliative trajectory.¹ Different terminology, classification and assessment methods for depression, depressive symptoms and depressive disorder in palliative care studies are used, resulting in a wide range of reported prevalence of depression between 3% and 77% of patients.¹⁻³ In patients with advanced cancer the prevalence of a depressive disorder as assessed by a structured psychiatric interview is reported to be 8.7%–11.8%, depending on the time after diagnosis.⁴ Patients with depression have a poor treatment adherence, increased difficulties in palliation of physical symptoms, increased disability, poorer prognosis, longer inpatient episodes, and elevated healthcare costs.⁵⁻⁸ Effective interventions for depression like psychotherapy or medication are available for patients in a palliative trajectory.^{5,9-12} Given the negative impact of depression in the palliative trajectory, recognition, correct diagnosis, and treatment of depressive disorder is of the utmost importance.

GPs have an important role in supporting and treating patients in a palliative trajectory.¹³⁻¹⁵ Hence, GPs also have a major role in recognising depression in patients in the last phase of their life. In primary care, patients who are diagnosed with a

depressive disorder by GPs meet diagnostic criteria of depression using standardised psychiatric interviews, Composite International Diagnostic Interview (CIDI) and Schedules for Clinical Assessment in Neuropsychiatry (SCAN).¹⁶ However, other studies show that depressive disorders may be under-recognised and undertreated by GPs.¹⁷⁻¹⁹ It is unclear to what extent depressive disorders are underdiagnosed in patients during their last phase of life. The European Association for Palliative Care (EAPC) calls for proactive screening and treatment of depression in patients with terminal cancer with a limited survival time.¹ Therefore, it is important to know the prevalence of depressive disorder during regular (primary) care of patients in their end stage of life.

This study explores the reported incidence of depressive disorders, as registered in the last year of life of a population of patients who died from cardiovascular disease, cancer, or chronic obstructive pulmonary disease (COPD), in primary care practices in the region of Nijmegen using a 20-year period registration database of medical records of GPs.

METHOD

This study is a historic cohort study with a dynamic population based on the Continuous Morbidity Registration (CMR)

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How this fits in

Depression is assumed to be common in patients during their last phase of life and has a great negative impact on a patient's life. Due to the use of different terminology, different classification, and assessment methods for depression, a wide range of prevalence of depression in the last phase of life is reported. In this study a remarkably low incidence of depressive disorder is reported in patients with cardiovascular disease, cancer, and COPD in their last year of life. These data were derived from actual patient care in general practice and may show that the assumption that the last phase of life is a risk for depressive disorder may be incorrect.

database that has a 45-year observation period. Patients whose information is registered in the CMR have signed an informed consent form to agree that this information can be used anonymously for research purposes.

The Continuous Morbidity Registration database

Details of the CMR database have been described elsewhere.²⁰ Briefly, since 1967 the CMR registers all new episodes of morbidity, presented to the GPs in four general practices in the surrounding area of Nijmegen, the Netherlands. The practices have a stable practice population of approximately 12 000–13 500 individuals.²¹ The practice population is representative of the Dutch population in terms of age, sex, and morbidity patterns.^{22,23} In the Netherlands, all inhabitants are listed within a general practice and receive their medical care through this particular general practice.²⁴ Consequently, these general practices have a very complete overview of their patients' medical history.

To classify morbidity the Dutch translation of the Royal College of General Practitioners' E-list was introduced in 1967, at that time this was the only general practice classification available. The E-list is based on the International Classification of Diseases and was updated in 1984 to make the list compatible with the ICHPPC-2 (International Classification Of Health Problems In Primary Care, 2nd Edition).²⁵ The E-list classification has been maintained in the CMR database ever since, to preserve consistency of data over time. Morbidity is prospectively registered by the GP at the time of diagnosis with a diagnosis-oriented classification in the individual

medical life history of the consulting patient. In addition, cause of death is recorded and entered in the system.

Medical diagnoses made after referral to other specialists are also included in the CMR database. When disease progression, outcome of additional testing, or specialist review after referral changes the diagnostic perspective, the recorded diagnosis is revised and the correct diagnosis will thus have the time stamp of the first patient encounter for this disease. When corrections occur, only the corrected diagnosis is available in the database. Furthermore, in the database, for each patient, sociodemographic information (age, sex, and socioeconomic status classified as low, middle, and high), and data on morbidity and mortality, if applicable, are available.

Registration of depressive disorder in the Continuous Morbidity Registration

The Dutch national guidelines for depression used in general practice are consistent with international guidelines and state that a depressive disorder should be diagnosed if five of the following symptoms occur almost daily during at least 2 weeks:

- depressed mood;
- decrease of interest;
- weight loss;
- insomnia or hypersomnia;
- psychomotor agitation or retardation;
- fatigue or loss of energy;
- feelings of worthlessness or excessive guilt;
- diminished ability to think or concentrate; or
- indecisiveness or recurrent thoughts of death or suicidal thoughts.

At least one of the symptoms should be depressed mood or decrease of interest.²⁶

This definition that was first explicitly introduced in the guideline in 1994 reflects the diagnostic criteria that had been used in the CMR before.

In this study the medical history of deceased patients was analysed for episodes of depressive disorder. It has been demonstrated that for the large majority of patients in the CMR database their diagnosis is in agreement with the above-mentioned diagnostic criteria for depression.^{16,27}

Selection of patients

In this study, all patients were recruited in the CMR database if they matched the

following inclusion criteria: patients who had died in the period from 1 January 1989 to 1 January 2009 of cardiovascular disease, COPD, or cancer and patients had been listed with the practice for ≥ 5 years before their death.

Three groups of 'causes of death' were formed: cardiovascular disease, cancer, and COPD. In the three groups different diseases were included. In the group of patients who died from cardiovascular disease ('death by cardiovascular disease') all patients who were registered with a cause of death of myocardial infarct, heart failure, atrial fibrillation, cerebrovascular accident, and cardiac valve disease were included. Furthermore, patients who had a history of at least one of these diagnoses and had a registered cause of death of cardiac arrhythmia, tachycardia, peripheral arterial disease, pulmonary embolism, angina pectoris, other heart disease, other vascular disease, and other diseases of the cardiovascular system, were also included in the group 'death by cardiovascular disease'. In the group of patients who died from cancer ('death by cancer') all patients who were registered with a cause of death of any carcinoma, melanoma, leukaemia, multiple myeloma or lymphomata, or unknown metastasis were included. In the group of patients who died from COPD ('death by COPD'), all patients who had a registered cause of death of obstructive and/or chronic bronchitis or bronchiectasis were included. Furthermore patients who had a history of obstructive or chronic bronchitis or bronchiectasis and had a registered cause of death of pneumonia or other lower airway disease were also included in the group 'death by COPD'.

Statistical analysis

Descriptive statistics were used to summarise the characteristics of the patient sample. The medical history of the included patients was analysed for the diagnosis of a new episode of depressive disorder and descriptive statistics were used. The date

of a new episode of depressive disorder was related to the date of patient's first diagnosis of COPD, cardiovascular disease, or cancer and to the date of their death.

RESULTS

Population characteristics

From 1 January 1989 to 1 January 2009, 1666 deaths were recorded in the CMR database; 200 cases were excluded because patients were registered < 5 years in the practice and thus did not meet inclusion criteria. Of the 1466 deaths, 462 patients (31.5%) died of causes other than cardiovascular disease, cancer, or COPD. Twenty-two patients were excluded because no diagnosis matching the cause of death was registered, so the order of occurrence of morbidity could not be determined. Of the remaining sample of 982 patients, 506 patients (51.5%) died of cardiovascular disease, 414 patients (42.2%) died of cancer, and 62 patients (6.3%) died of COPD. Demographic information of the study sample is provided in Table 1.

Incidence of depression in the last 6 and 12 months before death

Of the 982 included patients, 19 patients (1.9%) were diagnosed with a new episode of depressive disorder in the last year before their death. Of these 19 patients, 11 patients (1.1%) were diagnosed with a depressive disorder in the period of 6 months before their death.

The lifetime prevalence of depressive disorder in this sample was 8.2% (81 patients: 49% male, 51% female). The mean age at the time of death of patients with or without a lifetime depression was respectively 72.6 years and 73.6 years. Of the patients who died from cardiovascular disease, cancer, or COPD, lifetime prevalence of depressive disorder was respectively 6.9%, 9.9%, and 8.1%.

Of the 81 patients who were diagnosed with an episode of depressive disorder, 55 patients were diagnosed with depression before they had been diagnosed with the disease (cardiovascular disease, cancer, or COPD) that finally caused their death, and 26 patients were diagnosed with depressive disorder after they received a diagnosis of COPD, cardiovascular disease, or cancer.

DISCUSSION

Summary

This study offers information about the incidence of depressive disorder in the last phase of life derived from actual patient care in primary care and reports an incidence of depressive disorder of 1.9% in the last year of life of 982 patients who

Table 1. Demographic information study sample					
	<i>n</i>	Mean survival after first diagnosis, months (SD)	Mean age at death, years (SD)	Male, <i>n</i> (%)	Female <i>n</i> (%)
Cardiovascular disease	506	65.8 (3.6)	76.5 (11.3)	259 (51)	247 (49)
Cancer	414	38.3 (2.9)	69.1 (12.2)	237 (57)	177 (43)
COPD	62	129.0 (9.1)	78.5 (8.0)	43 (69)	19 (31)
Total	982	59.0 (2.5)	73.5 (12.0)	539 (55)	443 (45)

died of cardiovascular diseases, cancer, or COPD. The incidence of depressive disorder in this study does not differ much from the 1-year-incidence in the general Dutch population of 1.7% that is reported in the NEMESIS study.²⁸

Strengths and limitations

The diagnoses in this study were made in the context of actual patient needs and in the context of the delivered care. The long-term registration database that was used, has maintained a consistent classification system in a stable population.²¹ This population is representative for the general Dutch population.^{22,23} A comparison of the study sample with the mortality data of the general Dutch population in 1990 showed that the study sample is representative concerning the proportion of causes of death (cardiovascular disease, COPD, and cancer) as well as the proportion of male and female deaths within the different causes of death.²⁹ Furthermore, the classification system has been proved to adequately diagnose depressive disorder.¹⁶

This study has several limitations. To improve the consistency of this study population and the consistency of the patient–doctor relationship, patients who were listed in the practice <5 years were excluded. This could have resulted in excluding patients with an unstable life, patients who left the practice out of dissatisfaction with their doctor, or patients who were admitted to a nursing home in the last phase of their life. Patients with major life events such as moving house may be at a greater risk of developing a depressive disorder. However, in general the CMR registration has a stable practice population. Furthermore, if a problem arises in the patient–doctor relationship that results in the ending of this relationship, it is possible for patients to stay in the same practice with a different GP and thus still be part of the CMR database. This makes it unlikely that the results have been severely influenced by this bias.

Furthermore, the inclusion of different diagnoses in the causes of death groups can be somewhat arbitrary, especially in the case of death by COPD or cardiovascular disease, because some of the diagnoses, such as pulmonary embolus, can be linked with both COPD and cardiovascular disease. It is unlikely that this has influenced the results because of the very low prevalence of pulmonary embolus.

Regarding the diagnostic process, first, it is not known how individual patients in this sample were assessed for depressive

disorder by their GP. Secondly, because different physicians were participating in the CMR there could have been inter-doctor variation in assessing depressive disorder. In general, this is assumed to be small because criteria for diagnosis are discussed in monthly meetings, where the application of diagnostic criteria is monitored. However, GPs may have different views or different ways of assessing depressive disorder in the last phase of life¹⁵ that has not been monitored specifically. Furthermore, in interpreting the findings of this study, it must be considered that depressive disorder throughout the 20 years of data that were included in this study may not have been a stable concept. Changes in perspective on depressive disorder, for example the concern for medicalisation and overtreatment,³⁰ may influence the assessment of depressive disorder by physicians. In this study, it is unclear what perspective on depressive disorder the GPs used over the years.

This study was too small to compare differences in the incidence of depression in the different diagnosis groups. It is likely that people who suffer from COPD, cardiovascular disease and cancer experience different disease trajectories and it could be that also the incidences of depressive disorder are different for the different disease trajectories.²⁰ Moreover, different cancer types are known to specifically increase the risk for depressive disorder, possibly because of the cause of specific biological characteristics of depressive disorder.^{31–33} Furthermore, this study aimed to explore the incidence of depressive disorder in the last phase of life. However, the patients included in this study suffered from a mix of chronic and subacute causes of death. It is possible that there are differences in incidence of depressive disorder between these groups.

This study did not explore other psychiatric comorbidity, such as anxiety disorders, that can be related to mood symptoms and may also have a high incidence in palliative care patients. In a previous study a prevalence of anxiety disorders of 7.6% is reported in advanced cancer patients.³⁴

This study reported new episodes of depressive disorder in the last year of life. Patients who were already diagnosed with depressive disorder before their last year of life and continued to suffer from depression in their last year of life, were not included in the reported last-year-incidence.

Comparison with existing literature

Two reviews on depressive disorder

Funding

This study was not funded.

Ethical approval

According to the law and policy in the Netherlands, ethical approval is not required in case of research of anonymous morbidity or mortality registration.

Provenance

Freely submitted; externally peer reviewed.

Competing interests

The authors declared no competing interests.

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in palliative care patients conclude that depressive disorder is common and there are concerns about underdiagnosis and undertreatment.^{1,5} However, the conclusion of the first review was that the quality of the evidence was poor and that the samples of patients were generally small.⁵ Although the second review has been based on a literature search, no details were provided of the review methodology and the influence of study quality on the outcomes. So, although the findings of these reviews contrast with the findings of the current study, the low incidence of depressive disorder in the last year of life is considered a valid result from reliable, real life data. The low incidence is in the range of the 1-year-incidence in the general population.

A possible explanation for the relatively low incidence of depressive disorder in this study may have been that the diagnoses in this study were made in the context of delivered care, guided by the patient's agenda and in the context of patients' needs in contrast to population research where depression is diagnosed with questionnaires or psychiatric interviews. Possibly GPs do not easily classify depressive symptoms in a palliative care context as depressive disorder as they consider these, in accordance with the patients, as normal reactions in the context of the end of life. Indeed, a recent focus group study showed that while GPs are sometimes reluctant to classify sadness as depression in a palliative care context, they frequently attend to normal sadness in palliative care patients.¹⁵ GPs can attend to emotional issues in a palliative care context without dichotomising the complex pattern of complaints into normal or disorder and with a explicit focus on the context of the

depressive complaints that the patient experiences.

Implications for practice and research

Previous studies in palliative care patients with cancer report high numbers of depressed patients.^{1,24} Based on the findings of this study, the assumption that the last phase of life is a risk for depression may be incorrect. The question remains whether depressive disorder is truly not as common in patients in the last phase of life than has been previously assumed, or whether this is caused by methodological issues such as method of registration and the context of the assessment.

Finally, if the incidence of depressive disorder is low, it does not mean that there is no patient need for care for mood symptoms in the last phase of life. Patients may benefit from a broader classification of emotional issues, in which support can be provided without dichotomising complaints of sadness into normal or depressive disorder. It is recommended that the context of the patient is explicitly included in this process of diagnosis and suggest that patient burden and patient need for support for emotional issues should be included in the assessment.

This seems congruent with the way GPs manage mood symptoms of their palliative care patients; they seem to manage these symptoms with a strong focus on the context of the patient without needing a diagnosis of a disorder.¹⁵ Therefore, it is recommended studying the last phase of life with a broader concept of depression to gain more insight in the actual situation in clinical practice.

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