Prevalence of mental disorders among depressed coronary patients with and without Type D personality. Results of the multi-center SPIRR-CAD trial

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ABSTRACT

Objective: Type D personality, as with formal mental disorders, is linked to increased mortality in coronary heart disease (CHD). Our aim was to determine the prevalence of mental disorders among depressed CHD patients with and without Type D personality.
Methods: Depressive symptoms (HADS, HAM-D), Type D personality (DS-14) and mental disorders based on DSM-IV (SCID I and II) were assessed. Results were calculated by Kruskal-Wallis tests, Fisher's exact tests and logistic regression analyses.
Results: 570 CHD patients were included (age 59.2 ± 9.5 years; male 78.9%, HADS-D depression 10.4 ± 2.5; HAM-D 11.3 ± 6.6; Type D 60.1%). 84.8% of patients with Type D personality and 79.3% of non-Type D patients suffered from at least one mental disorder ($p = 0.092$), while 41.8% of Type D positives and 27.8% of Type D negatives had at least two mental disorders ($p = 0.001$). Patients with Type D personality significantly more often had social phobia [odds ratio (95% confidence interval): 3.79 (1.1 to 13.12); $p = 0.035$], dysthymia [1.78 (1.12 to 2.84); $p = 0.015$], compulsive [2.25 (1.04 to 4.86); $p = 0.038$] or avoidant [8.95 (2.08 to 38.49); $p = 0.003$] personality disorder.
Conclusions: Type D personality among depressed CHD patients is associated with more complex and enduring mental disorders. This implies higher treatment demands.
Trial registration: ISRCTN 76240576; NCT00705965

1. Introduction

The "Type D" (distressed) personality construct was introduced by Denollet in 1995 [1]. It is characterized by the combination of two enduring basic traits, "negative affectivity" (i.e. dysphoria, anxiety, irritability) and "social inhibition" (i.e. inhibited behavior during social interaction). These two basic traits are recorded psychometrically on two scales of the self-rated DS-14 questionnaire. Although Type D is considered a risk factor for mental distress and physical illness, it is not equivalent to a specific mental disorder, such as depression. Instead, the construct emphasizes "the role of normal traits rather than psychopathology" [2]. Type D personality is assumed when both scales of the DS-14 lie above the median of Denollet's validation sample. Type D therefore just reflects the upper half of an empirical distribution in the population rather than a clinical condition. The prevalence of Type D personality in the general population was reported as 21% in Belgium [2] and 31% in Germany [3]. Among German patients, the prevalence of Type D was 25% in cardiology and 62% in psychosomatic medicine

[4].

Numerous studies and two meta-analyses [5,6] have shown that the Type D personality is an independent predictor of poor outcome for various heart diseases. Although more recent studies could no longer demonstrate a connection between the Type D pattern and poorer cardiac prognosis [7–9], the review by Grande et al. [6] concludes that Type D seems to have a significant overall prognostic effect, although the size of this effect may have been overestimated in the early studies.

Most previous studies linking Type D personality to psychopathology measured both, Type D and related constructs such as depression or exhaustion, with self-rating scales. Only two studies have used validated observer ratings to investigate the connection between Type D personality and depression or panic disorder [10,11] and none has looked at a broader range of mental disorders according to ICD or DSM in patients with vs. without the Type D personality.

One study looking at depressive episodes (as per CIDI) and Type D personality (as per DS-14) in 1205 post-myocardial infarction patients from the MIND-IT trial showed that depression and Type D represent two widely different forms of distress: While 17% of the patients were diagnosed with depression and 19% were considered Type D, the majority of depressed patients (56%) did not show the Type D pattern and the majority of Type D patients (63%) were not clinically depressed. Combined depression and Type D was found in no > 7.5% of the whole sample. Depression and Type D also showed different associations with cardiac health: Patients who were suffering from depression without having the Type D personality pattern (34%) had the most severe heart disease (in terms of ejection fraction and clinical heart failure), whereas patients with depression and the Type D pattern did not differ in their cardiac status from those who had none of these two risk factors [7,10]. Unfortunately that study did not consider other mental disorders beyond depression. The second study [11], investigating 410 patients with non-cardiac chest pain presenting to an emergency ward, used MINI interviews to diagnose depression or panic disorder. In this highly selected group, a total of 27% had isolated panic disorder, 4% had depression, and 36% had comorbid panic disorder and depression. While isolated panic disorder or depression were unrelated to Type D, Type D patients had a substantially increased percentage of comorbid panic disorder and depression as compared to non-Type D patients (58% vs. 23%), underlining a possible role of Type D as a risk factor for more complex psychopathology rather than an indicator of a specific disorder. Accordingly, also 54% of non-Type D patients in that study also had panic disorder and/or depression. Other mental disorders were not specifically assessed.

While the association of Type D with a broader spectrum of interview-diagnosed mental disorders has not been investigated so far, shedding light on this association might be important to guide treatment. Based on the definition of Type D personality as a "trait", it is assumed that there could be an association especially with more complex or enduring mental disorders, especially personality disorders (according to DSM-IV) which, unlike (episodic) depression cannot be expected to improve with usual medical care and may interfere with treatments for heart disease. It would therefore be useful to identify these patients early in the disease process and offer them specific treatment.

For example, the SPIRR-CAD trial in 570 depressed coronary patients found a significant moderating effect of Type D on change in depression scores: While Type D patients tended to fare better with psychotherapy, non-Type D patients improved similarly with psychotherapy or usual care only [12].

The aim of this research was therefore to investigate the connection of Type D personality with defined mental disorders (as per DSM-IV) and their comorbidity among depressed CHD patients.

2. Material and methods

2.1. Design

The present study was conducted as part of the multi-center Stepwise Psychotherapy Intervention for Reducing Risk in Coronary Artery Disease (SPIRR-CAD) trial. SPIRR-CAD is a randomized, controlled intervention trial on the effect of a stepped, combined, psychodynamic-cognitive-behavioral, individual and group psychotherapeutic intervention on depressive symptoms among CHD patients. The study design and primary outcome have been published elsewhere [12,13]. Briefly, the trial was based on the assumption that trait negative affectivity and social inhibition might impede remission of depressive symptoms and need special attention. The intervention therefore had a focus on coping with these personality traits in the context of cardiac illness. The results of the trial indeed showed that, although psychotherapy was not significantly superior to usual care in the whole sample, Type D was a significant moderator of psychotherapy success [12]. The trial was conducted in accordance with the Helsinki Declaration and the ethics committees at all trial sites approved the protocol. All patients gave their written informed consent before being included into the trial.

The current analysis is based on cross-sectional baseline data for Type D and mental comorbidity.

2.2. Participants

In 10 tertiary care centers all German-speaking men and women aged between 18 and 75 and admitted between November 2008 and April 2011 with any manifestation of coronary heart disease (from stable angina pectoris through to acute coronary syndromes) and recent coronary angiograms were screened for the presence of depressive symptoms (depression score > 7 on the Hospital Anxiety and Depression Scale [HADS]).

Exclusion criteria were severe heart failure, the presence of other acute life-threatening diseases (e.g. progressive malignancies), severe chronic inflammatory diseases, chronic obstructive pulmonary disease with acute exacerbation or systemic administration of corticoids, medication with immunosuppressants following organ transplantation, and severe mental illness (severe depressive episode, acute suicidal tendency, bipolar disorder, psychotic disorder, dementia or current substance dependence) [12,13].

2.3. Measures

Clinical data including pre-treatments, comorbidities and current therapy were taken from the patients' records. Details about the severity of heart-related symptoms (CCS class, NYHA class) and socio-demographic information were recorded by a questionnaire and structured interview.

The presence of Type D personality was determined using the German version of the 14-item Type D scale (DS-14) [2,4], which showed good psychometric properties in a validation study of 2421 individuals (cardiology patients, psychosomatic patients and healthy factory workers). The self-assessment questionnaire, which is considered the current standard in assessing Type D personality [2], consists of two 7-item scales ("negative affectivity" and "social inhibition"). Participants are instructed to rate each item on a five-point Likert scale of 0 (not at all) to 4 (very much). Type D personality is assumed when both the negative affectivity and social inhibition scores are 10 or higher [2,4]. In the validation study the two-factorial structure of the original scale could be clearly replicated. Cronbach's alpha was > 0.8 for both subscales.

The presence of current symptoms of depression and anxiety was determined using the German version of the Hospital Anxiety and Depression Scale (HADS) [14,15]. The HADS is a widely used self-rating