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Commentary

Cardiovascular Death and Type D Personality

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Cardiovascular disease continues to be the primary cause of death globally and is linked to a significant risk of mortality and illness [1]. In the traditional sense of the word, cardiovascular disease is a pandemic, and it affects approximately 26 million people globally [2]. An important element for the advancement of both cardiovascular medicine and behavioral medicine is the identification and exploration of important psychosocial factors, their idiosyncrasies, it's characteristics and attributes, which are associated with cardiovascular disease. Research in behavioral medicine has confirmed that personality, specifically Type D personality, is a risk factor for cardiovascular disease and is also a strong and reliable predictor of poor health [3].

Type D personality is characterized by negative affectivity and social inhibition and is a predictor of poor outcomes in cardiovascular health [4]. Patients with coronary artery disease and Type D personality have a higher rate of mortality and nonfatal myocardial infarction [5]. They also have a four to six times higher risk for anxiety and depression [6], five times higher risk for poor mental health [7], and four times higher risk of recurrent cardiac episodes [8] compared to individuals who are not Type D personality. They are at a significantly higher risk of myocardial infarction, a poorer prognosis following a myocardial infarction [9] and more cardiovascular-related health problems compared to individuals who are not Type D personality [10]. The European Heart Society now considers Type D personality a psychosocial risk marker for which patients with cardiovascular disease must be screened for [1].

Type D personality combines with other medical and psychological risk factors such as anxiety, cardiovascular disease, depression, and low self-esteem and results in a synergistic effect. Patients that manifest numerous risk factors have a four times higher risk of an unfavorable outcome [3]. Type D personality is linked to the dysfunction of the most important biological systems and unfavorable health behaviors [3]. There is an established association between Type D personality and cardiovascular system (heart, arteries, arterioles, capillaries, venules and veins) dysfunction, adverse cardiac events, and cardiovascular outcomes. Type D personality is an independent and strong predictor of cardiac death, myocardial infarction, and cardiac revascularization [3].

Type D personality is a known risk factor for premature, cardiac-related death [11]. The Type D personality construct has been linked to several cardiovascular conditions that strain, weaken and debilitate and ultimately damage the heart muscle as well as serious cardiac outcomes; heart arrhythmias [12], chronic heart failure [13], coronary artery disease [14], hypertension [15], myocardial infarction [7] and peripheral arterial disease [16].

Some researchers argued that the association between Type D personality and cardiac death had not been definitively established because other studies contradicted the assertion that Type D personality mediated or was a predictive factor of cardiac death [17,18]. Researchers examined the association between Type D personality and cardiac death among patients with heart failure and concluded that Type D personality did not predict cardiac death [17]. Researchers also studied the link between Type D personality and cardiac death among German cardiac patients and concluded that there was no linkage between Type D personality and an increased death rate in heart disease patients [18]. Other researchers countered that the findings of the studies that did not show an association between Type D personality and cardiac death may have been weakened by the fact that the study populations were not homogeneous in that patients

exhibited a number of different cardiac-related diagnoses, abnormal conditions and pathologies difficult to control but important for multivariate analyses [18].

In a cornerstone study, researchers examined the influence and effect of the Type D personality construct and mortality post-myocardial infarction among 105 male myocardial infarction survivor patients between the ages of 45 and 60. The study showed that at a two to five-year follow-up period, 73% of the patients that had died were Type D personality [19]. Another study explored the impact of Type D personality among a population of coronary artery disease patients. This study included 303 patients between the ages of 31 and 79 with coronary artery disease and in rehabilitation. The study demonstrated that cardiovascular death was a key characteristic of Type D personality and represented a significantly risk of mortality for both men and women with coronary artery disease. Patients with Type D personality had a four times higher risk of death compared to non-Type D personality patients [4].

Researcher conducted a study of ten personality features to determine whether personality predicts mortality. The study known as the French GAZEL, was comprised of 14,445 participants between the ages of 39 and 54. This study demonstrated that personalities predisposed to coronary heart disease, such as Type D personality, and anti-social and neurotic hostile type personalities were predictive of mortality [20]. Recent study evaluated the association between Type D personality and cardiac mortality among chronic heart failure patients. The study revealed that Type D personality patients with chronic heart failure were at a substantially higher risk of cardiac death compared to non-Type D personality patients with chronic heart failure. The risk of cardiac death for Type D personality patients was four times higher than non-Type D personality patients. The study concluded that there is a direct correlation between Type D personality and cardiac death [21].

Recent meta-analysis that evaluated the predictive consequence of Type D personality, determined that coronary heart disease patients who had a Type D personality also had a considerable higher risk of mortality compare to coronary heart disease patients who did not have a Type D **pe**rsonality [22]. The meta-analysis summarized 12 studies with a combined population of 5,341. The meta-analysis showed that Type D Personality was associated with cardiac events and death. One particular study of 152 of coronary heart disease patients demonstrated that patients with Type D personality were at considerably higher risk of plaque build-up. These patients were 4.5 times more likely to have lipid plaque build-up, 3 times more likely to have a thin cap fibroatheroma, and 2.5 times more likely to have plaque rupture [22].

Type D personality is characterized by negative affectivity and social inhibition and is a known predictor of poor outcomes in cardiovascular health. Patients with coronary artery disease that have a Type D personality are at higher risk of suffering from anxiety, depression, poor mental health, and have a higher risk of recurrent cardiac episodes and cardiac death. It is imperative that medical and scientific professionals identify pathways that help increase the body of knowledge and pathophysiological understanding and translate that information into awareness and personalized intervention.

Author Contributions

The author confirms being the sole contributor of this work and approved it for publication.

Conflict of Interest Statement

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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