CARDIOVASCULAR DISEASES IN PATIENTS WITH BIPOLAR DISEASE: PRAGMATIC MANAGEMENT

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SUMMARY

Background: Bipolar disorder (BD), also known as manic-depressive illness, is a condition characterized by unusual shifts in mood, energy, activity levels, and the ability to carry out day-to-day tasks. Bipolar disorder is known to be a chronic and disabling disease associated with higher incidence of obesity, diabetes, metabolic syndrome, dyslipidemias, hypertension and tobacco use which all together are known risk factors for the development of Cardiovascular diseases. With this research we wish to collect evidence to show how Cardiovascular diseases (CVD) affect Patients with Bipolar disease, the burden it can have in patients lives, to understand how this problem has been assessed so far and present suggestions that may improve the health care of these patients.

Methods: Our study is a literature based research.

Conclusion: with our study we concluded that patients with BD are at higher risk of CVD and at an earlier age compared with the general population. Also, there is a lack of proper monitoring and consideration of the cardiovascular risk factors in patients with Bipolar disorder whether by primary care physicians or psychiatrists even though it plays a critical role in the general outcome of this patients and also leads to increase in mortality and morbidity rates.

Key words: *bipolar disease - cardiovascular diseases*

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INTRODUCTION

Bipolar disorder (BD) is one of the most common psychiatric conditions, with an estimated lifetime prevalence of 1.2% 1 and a 12-month prevalence of 0.5% (Berk 2007). It is a chronic and disabling illness associated with significant morbidity and mortality (Kupfer 2005). Patients with BD are subject to premature death from all causes when compared to the general population (Angst 2002) and usually have several comorbid general medical conditions associated with worse outcomes and higher burden of disease (Khrishnan 2005, Thompson 2006, Guo 2008). In addition to being exposed to the weight gain effects of the pharmacological treatment, BD patients are more likely to have sedentary lifestyles and poor dietary habits (Kilbourne 2007), that exponentially increase the possibility of this patients to suffer from cardiovascular diseases such as hypertension and coronary artery disease.

CARDIOVASCULAR DISEASES IN BIPOLAR PATIENTS: THE ISSUE OF UNDER-RECOGNITION

There is strong evidence of under-recognition of cardiovascular disease in people with major mental illness (Smith 2013). The reasons for this can be several, such as people with bipolar disorder may be less likely to seek help from their general practitioner (GP) with symptoms of cardiovascular disease because of low awareness of cardiovascular risk factors and associated symptoms (De Hert 2011). This could be due to mental state abnormalities, social isolation and in some cases low levels of education (De Hert 2011).

A recent meta-analysis comparing patients with and without major mental illness found that individuals with a history of major mental illness had significantly lower prescription rates for cardiovascular medications (Mitchell 2012), and studies have confirmed this fact demonstrating a prescribing disparity for both cholesterol lowering and antihypertensive medications (Smith 2013).

Due to the fact that patients with BD have a high prevalence of risk factors for cardiovascular diseases a better recognition and treatment of physical health comorbidities appears to be essential in the good outcome of this patients.

THE BURDEN OFCARDIOVASCULAR DISEASES IN BIPOLAR PATIENTS

Research suggests that Bipolar disorder is associated with premature mortality when compared with the general population. Some studies showed that persons with BD died of CVD approximately10 years earlier than the general population. The prevalence of CVD is increased approximately 2- to 3-fold in people with illness, particularly in younger individuals (De Hert 2009, Laursen 2009). One third (38%) of all deaths in persons with BD are caused by CVD and almost half (44%) by other somatic diseases, whereas suicide and other external causes accounted for less than a fifth of all deaths (18%) (Westman 2013). Also, patients diagnosed with BD have almost 2-fold risk of cardiovascular disease mortality (Crump 2013). Precursors of cardiovascular mortality, such as CVD and hypertension

(HTN), are among the most common medical conditions in BD, and are major contributors to increased treatment costs in BD (Kilbourne 2013) (Figure 1)
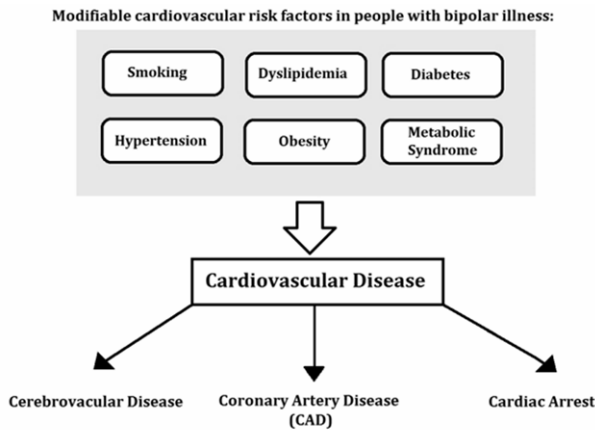

Figure 1. Illustration of the modifiable cardiovascular risk factors that lead to the Cardiovascular Diesease and death in people with bipolar diseases

THE PRAGMATIC MANAGEMENT CARDIOVASCULAR DISEASES IN BIPOLAR DISEASE

Over the last years, there has been an increasing awareness of the burden of physical illness in people with severe mental illness e.g. Bipolar disease. The National Institute for Health and Clinical Excellence (NICE) guidance places the primary responsibility for physical health screening with primary care within the UK healthcare system; this should be assessed at least annually with a focus towards diabetes and CVD risk. Furthermore, there is a responsibility for health care professionals in secondary care to ensure that people with bipolar disease receive physical health care from primary care, and this should form part of the clinical care plan (Practical Diabetes Int 2010). However, in practice this is not happening. Patients may have limited access to general healthcare with less opportunity for cardiovascular risk screening and prevention than would be expected in a non-psychiatric population (De Hert 2009).

There remains uncertainty about who within the clinical team should take responsibility for the screening (Barnes 2007) and this misunderstanding is associated with poor access to basic equipment and lack of confidence to interpret and diagnose within Psychiatric settings. Even where cardiovascular risk factors are detected, there is evidence of under treatment (Nasrallah 2006).

THE PRINCIPLE OF CARDIOVASCULAR RISK ASSESSMENT IN BIPOLAR PATIENTS

The principle of cardiovascular risk assessment is similar to that of the general population and involves the application of age, sex, smoking status, systolic blood pressure and total cholesterol, or the ratio of total to HDL cholesterol, to locally relevant risk engines (British Cardiac Society 2005). However health care professionals should have in consideration that cardiovascular problems in people with severe mental illness usually arise earlier than the rest of the population and CVD risk scoring systems, such as Framingham and SCORE may therefore underestimate the risk of CVD in these patients.

Table 1. Measures of screening for cardiovascular risk factors

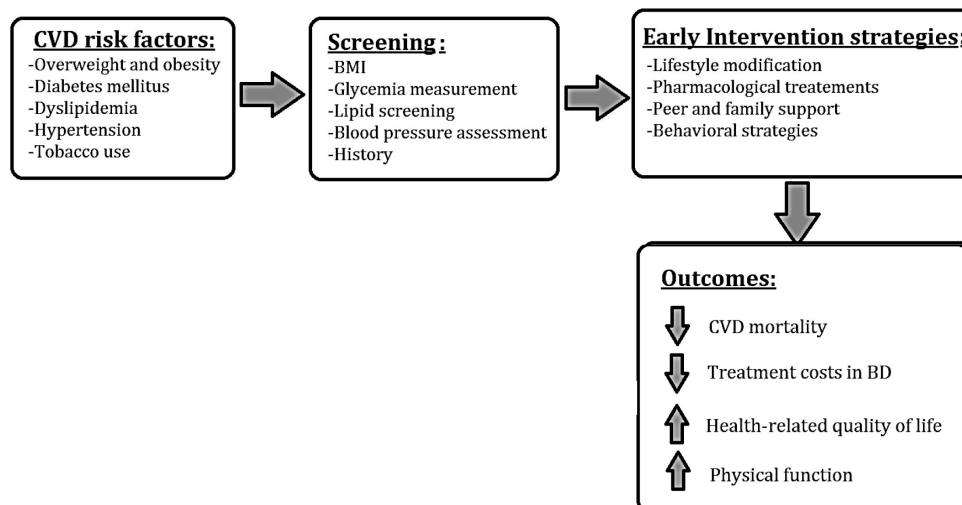| CVD risk factors	Measures of screening
Overweight and obesity	BMI calculation
Diabetes mellitus	Glucose screening
Dyslipidemia	Lipid screening
Hypertension	Blood pressure measurement
Smoking	History

Figure 2. Depicts the importance that screening for these conditions has for the treatment and health outcomes for patients with BD

So far there is no comprehensive review of the literature regarding rates of screening for cardiovascular risk factors in the population with BD. Nevertheless there are measures of screening for five cardiovascular risk factors and one risk behaviour shown by prior research to be highly prevalent among the population with severe mental illness: (1) overweight and obesity; (2) diabetes mellitus; (3) dyslipidemia; (4) hypertension; and (5) tobacco use; and given the disproportionately high prevalence of cardiovascular risk factors in the population with BD, systematic screening for these conditions is an important first step for timely diagnosis and appropriate treatment that may improve health outcomes for patients with BD (Baller 2015) (Table 1, Figure 2).

THE POSSIBILITY OF A NEW SCREENING METHOD FOR CARDIOVASCULAR RISK ASSESSMENT IN BIPOLAR PATIENTS

Even though there are standard ways to screen for cardiovascular risk factors in the population, there is no method to determine the risk of CVD screening in patients with Bipolar disorder. Therefore, the application of standard screening protocols may be promising to help prevent higher rates of morbidity and mortality caused by CVD in bipolar patients. We *introduce an example* of a simple *screening method* based on a score calculated by adding together the points that correspond to the risk factors that are present. This method can be easily used in primary and secondary care settings. The total score indicates the risk of the patient to develop CVD. A high score corresponds to a greater risk, while a low score corresponds to a lower risk (Table 2).

Table 2. The example of a proposed risk stratification schema that can help determine the risk of CVD in patients with Bipolar disorder. The risk of CVD in patients with BD can be estimated by adding together the points that correspond to the risk factors that are present. The total score indicates if the patient is at low, intermediate or high risk to develop CVD

Score	Riskfactorscriteria
1	Overweight (BMI>25) or Obesity (BMI>30)
1	Diabetes Mellitus
1	Dyslipidemia
1	Hypertension
1	Smoking
2	Prior Cardiovascular disease

Total Score	Risk	Consideration
0	Low	Follow-up
1	Intermediate	Closer monitoring
>2	High	Reference to a Cardiologist

DISCUSSION

The findings of this study show that CVD contributes to the shortening of life expectancy among patients diagnosed with BD. Evidence from several studies demonstrate that CVD is liable for the increased mortality in these patients.

Although there are established ways to screen for cardiovascular risk factors in the population, there is no comprehensive review of the literature regarding rates of screening for cardiovascular risk factors in the population with BD, this leads to a considerable variation in screening of cardiovascular risk factors in the population with serious mental illness with significant need for improvement. This is mainly due to the unsettled responsibility for the screening, lack of access to basic equipment and the poor confidence to interpret abnormal results within mental health care settings.

CONCLUSION

Patients with BD are at higher risk of CVD and at an earlier age compared with the general population. CVD is bonded to a higher occurrence of modifiable risk factors (overweight and obesity; diabetes mellitus; dyslipidemia; hypertension; and tobacco use). The screening of modifiable risk factors can reduce the burden of CVD in people with BD. Nonetheless, close collaboration between primary and secondary care, as mental and physical health services is essential to reduce morbidity and mortality in these patients.

The implementation of standard screening protocols triggered by diagnosis of BD may be promising avenues for ensuring timely diagnosis and treatment of cardiovascular risk factors in this population (Baller 2015).

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