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Review Article

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Neurobiology of increase in violence in Syria and role of online medical care in its reduction

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Abstract

Causes of increase in violence in a named society, apart from socio-political and economic reasons, will be examined in this study. One of the most important reasons for increase in levels of hostility in a society is prevalence of psychological depression among population, which can lead to violent behavior and cause physical harm to one self or others, increase in suicidal tendencies and destruction of property. Increase and prevalence of internal medical diseases are one of the main causes of increase in depression, among which diabetes, hypothyroidism, vitamin D, calcium, and vitamin B12 deficiency, dyslipidemia can be mentioned. The main cause for increasing prevalence of depression in Syria can be attributed to: Rapid increase in spread of diabetes. Partially high prevalence of diabetes type 2 (%15.6) Share of other illnesses contributing to depression can be summarized as follows: 47% to spread of vitamin B12 deficiency.

In order to have more accurate results further measurements of prevalence of deficiency in vitamin D, calcium, and spread of hypothyroidism, and subclinical hypothyroidism is recommended. By using on line medical care system in Iran, it was found that 85% of people suffering from depression had at least one of the above mentioned causes, and after treatment symptoms of depression were noticeably reduced. At the end of this article there is an announcement for specialists in Syria and other countries to adapt the online medical care system to their own circumstances.

Keywords: Neurobiology Diabetes, Vitamin B12 deficiency, Dyslipidemia, Calcium deficiency, Vitamin D deficiency, Hypothyroidism, Violence, Aggression Syria

Introduction

Increase in levels of hostility in a society can be due to many factors, namely political, social or economic, but in this study these factors will not be considered. In this study we want to know the following:

- Are economic, social and political conditions the only conditions that have changed in past 50 years?
- Have human beings changed during this period and are they as healthy as before?
- Are prevalence of some diseases leading to increase in levels of hostility in societies?

Depression disorders are among the causes that lead to increase in levels of hostility. This disorder is accompanied by conduct disorder in adolescents, and anti-social personality disorder in adults, both of which can lead to self harm, damage to property, and excessive aggression [1-3]. All of that can lead to injury and suffering of others. Depression disorders also can lead to increase in attempted suicide, which can also end in hostility [4]. Five medical internal medicine diseases which increase possible emergence of signs of depression will be studied in this article:

- Diabetes
- Calcium and vitamin D deficiency
- Hypothyroidism
- Vitamin B12 deficiency
- Dyslipidemia

Diabetes

Considering papers and articles published in Syria: The prevalence of T2DM based on FPG>125mg/dL and HbA1c>6.5% was 15.6% (11.2%self- reported; 5.o%diagnosed) and 14.8%, respectively [5]. The prevalence of impaired fasting glucose (FPG ≥110 and <126 mg/dL) was %8.6 According to our model, the prevalence of T2DM in Syria is projected to double in the period between 2003 and 2022 (from 10% to 21%) [6]. The projected increase in T2DM prevalence is higher in men (148%) than in women (93%). The increase in prevalence of T2DM is expected to be most marked in people younger than 55 years especially the 25-34 years age group. The future projections of T2DM in Syria put it amongst countries with the highest levels of T2DM worldwide. It is estimated that by 2022 approximately a fifth of the Syrian population aged 25 years and older will have T2DM [7]. Also studies in Saudi Arabia show that chance of emergence of depression is three times more in diabetic women than in others [8]. Studies in Iran tell us that more than 50% of children have vitamin B2 deficiency and since vitamin

B2 plays an essential role in carbohydrate metabolism, it can be said that vitamin B2 deficiency leads to disorder in carbohydrate metabolism and is one of the causes of increasing prevalence of diabetes [9,10]. Diabetes can lead to serious psychological problems as explained bellow:

In adolescent youth

Diabetes can lead to depression which in turn can lead to conduct disorder in adolescent youth, increasing the danger of harming oneself or others , or destruction of property [1]. In conclusion it can be said that diabetes increases the possibility of hostile behavior in adolescent youth. Conduct and conformity disorders can cause following problems:

- aggressive behavior causing bodily harm to oneself or others
- destruction of property
- theft and fraud
- disturbing law and order [11].

In adults

Also in adults suffering from diabetes, it increases the chance of depression disorders and this can lead to anti-social behavior causing harm to oneself and others [12]. In initial stages of diabetes when it happens in hidden form (occult diabetes), disorders like late hypoglycemia accrue, which can lead to nervousness, irritability and attacks of sudden rage and anger [13]. Delayed reactive hypoglycemia is one of the complications of occult diabetes which is the reason for delay in insulin release from beta cells of pancreas. In this case when glucose tolerance test is performed, both hyperglycemia in initial stage of test and hypoglycemia in final stage of test is observed.

Vitamin D and calcium deficiency

These two cases will be considered together since in most cases they cannot be separated. Calcium deficiency is a medical disease that in initial stages leads to depression and anxiety and in severe cases can lead to seizure and psychosis [14]. There are no statistics of calcium and vitamin D deficiency prevalence in Syria but the high prevalence of vitamin D deficiency in Iran and Saudi Arabia can predict the high prevalence of vitamin D deficiency in Syria [15-17]. Research in this field is recommended. Until the future researches is completed, we recommend to measure calcium and vitamin D deficiency in depressed patients who use the online medical care system in Syria. Besides, vitamin D deficiency can directly cause depression as well [18].

Hypothyroidism

We do not have access to a comprehensive study about prevalence of hypothyroidism in Syria [19]. The results of the researches in other middle eastern countries show significant difference in the prevalence of hypothyroidism in these countries, for example %11.87 in Iranian women, %9.3 in Saudi Arabian women and %3 in Egyptian women [20-22]. There are no enough studies for the prevalence of hypothyroidism in men. Research in this field is recommended. Till, the future researches is conducted, we recommend to measure TSH in depressed patients who use the online medical care system in Syria. Because this illness causes depression, examination for hypothyroidism in all patients suffering from depression is recommended, and should be included in the list of illnesses considered by on line medical care system in that country.

Vitamin B12 deficiency

Vitamin B12 deficiency can lead to many psychological symptoms like depression, anxiety and paranoia [23]. In a study in Iran, prevalence in vitamin B12 deficiency among 3 to 19 years age range is reported to be 25%, so it is included in the list of conditions to be examined by online medi-care system for depressed and anxious patients [24]. Since a study among syrian people show %7 low serum vitamin B12 level and %47 functional vitamin B12 deficiency diagnosed by elevated MMA, it is recommended that this illness should be included in online medi-care system in Syria as well [25].

Dyslipidemia

Considering articles published in Syria, prevalence of high blood cholesterol levels is %11.86, according to studies, disorder in fat metabolism, both in case of increase in levels and also excessive decrease can lead to depression [26-28]. We do not have enough data about hypolipidemia in Syria, but since there is high prevalence of high blood cholesterol level in population, inclusion of examination of hyperlipdemia in on line medical care system in Syria is recommended.

Introduction of online medical care system

As can be seen by this and other similar surveys there is a strong correlation between mentioned condition and levels of depression and aggression in different societies [29]. In order to monitor and treat such conditions individually and in groups an online medical care system was designed and developed by Hooshdar Medical Technologies Co. which can provide assistance and medical services to potential patients. By gathering relevant medical data about the applicant, the system is able to perform analyses and suggest course of action for treatment and further medical care. System can be used by individuals using online internet service or as an application providing service to medical centers. Full description of the system can be found here.The system is in its early stages and although initial results are very encouraging, much work remains to be done both in field of research about factors involved in prevalence of depression and aggression and also expanding functionality of the system. At the moment it is a software system but it has the potential of expanding to a hardware-software system with its own testing and diagnostic hardware.

So we would like to invite interested professional individuals and institutions to participate in the project by providing information, assistance both financial and technical.

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