

JMHS- Journal of Medicine and Health Sciences
(January 2023 - April 2023)

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Case Report

Ishaq Khan, S. I. Ahmad Qureshi, Mansoor. A Sheikh. Imran Mansoor, Shahida M.

Acute motor axonal neuropathy (AMAN) is an autoimmune based non inflammatory destruction of axons of motor nerve cells. It is preceded by infection by campylobacter jejuni or Hemophilus influenza. AMAN is a subtype of [Guillain-Barre Syndrome](#) (GBS). In these inflammatory diseases the myelin sheath is not affected, an earlier treatment is associated with good prognostic outcome. Loss of coordination, sensory manifestations, tendon reflexes (knee jerk) progressive motor weakness, impaired oculomotor function. In most of cases, Intravenous immunoglobulin and physiotherapy could help in complete resolution of symptomatology in 5-7 days. A fractional cases go on to observe improvement in moment and functional aptitude up to four years post-diagnosis.

Mr. Gull a 50 years old tailor by profession, had several working hours for the last 10 days to prepare dress for upcoming festival, with

insufficient rest. Meanwhile developed fever sore throat body pains and loose motions, He documented with impaired hand grip, fear to fall, dysmobility coordination and fatigue ability, chest pain and breathlessness. He used on counter sale drugs for almost a week but found no improvement in manifestations. He was immediately treated in intensive care unit(ICU) with a high dose of intravenous immunoglobulin (IVIg) mechanical ventilation to support respiratory muscles weakness. Frequent airways cleaning, change of posture, passive moments and physiotherapy and rehabilitation guidelines given. In order to counter development of contratures, pressure ulcers deep vein thrombosis. He remained in ICU for almost 2 weeks, guided before discharge regarding rehabilitation and safety protocols. On complete medical examination no concomitant health problem found.

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Role of Vitamin D3 Deficiency in Causation of Stroke Among Developing Nations

OBJECTIVE: The aim of this study is to evaluate the prevalence of stroke in vitamin D3 deficient patients and to evaluate risk factors associated with vitamin D3 deficiency that leads to development of stroke. Previous studies have been done in various countries to find out association between stroke and vitamin D3 deficiency where as in Pakistan such study hasn't conducted so far. The purpose of this study was to find out detrimental effects of vitamin D3 deficiency i.e. Stroke among developing nations.

METHODS: Stroke patients(n=162) i.e. both males and females fulfilling exclusion and inclusion criterion were enrolled in the study after taking proper consent via simple random sampling. Vitamin D3 levels of all the patients were assessed via blood sampling. We measured 25-hydroxyvitamin D by chemiluminescence test, serum calcium, phosphorus and alkaline phosphatase levels of all patients. Risk factors for vitamin D3 deficiency were also noted. The data was entered and analyzed using statistical package for social sciences (SPSS) version 21. A p-value of <0.05 was considered significant.

RESULTS: The study was conducted on 162 stroke patients, out of which 64% were females and 36 % were males. The age of the participants ranged from 45 to 75 and mean age was calculated as 60 years. Vitamin D3 deficiency was observed at three levels i.e. mild (n=22), i.e. 13% cases, moderate (n=40 patients) i.e 25% and severe deficiency (n=100) i.e. 61%. Associative risk factors leading to vitamin D3 deficiency in stroke patients are: Menopause in 55 patients, (40%), Atherosclerosis in 43 patients (25%), Osteoporosis in 34 patients (21%) and Uncontrolled Hypertension in 30 patients (18%). Low serum Calcium, phosphorus and Alkaline phosphatase levels were observed in 84 patients (52%) and 78 patients (48%) had normal to optimal serum values.

CONCLUSION: It is concluded that Vitamin D3 deficient patients are at higher risk for developing stroke and the ratio of stroke in such patient is comparatively higher than those individuals who have normal vitamin D3 levels.

KEYWORDS: Stroke, Vitamin D3, Cross-sectional study, Nutritional Deficiency

INTRODUCTION

Vitamin D also called “sunshine vitamin” related to the group of secosteroids which are fat-soluble vitamin. It is involved in the maintenance of calcium homeostasis and bone metabolism (1). The vitamin, first acknowledged in 1921, has two main forms vitamin D₃ and D₂ (2). These two vitamins are also called cholecalciferol and ergocalciferol that vary chemically only in their side-chain structure. Vitamin D is produced in skin and changed into active metabolites in the liver and kidney. On contact to ultraviolet radiation, pro-vitamin D₃ 7-dehydrocholesterol in the skin is converted to pre-vitamin D₃, which is then transformed to more stable vitamin D₃ (3). The major sources of the vitamin D are skin production through sun exposure and nutritional intake (4). The serum vitamin D level reflects endogenous production from exposure to sunlight as well as exogenous intake in diet (5). Vitamin D deficiency has long been related with proximal muscle weakness, increase in body sway and possibly higher risk of falling (6). In adults hypo-vitaminosis D can cause a skeletal mineralization defect. The most recognized consequences of hypo-vitaminosis D in children are rickets and osteomalacia in adults which lead to osteopenia and osteoporosis in later life (7). As a result, patients with osteomalacia often grumpy feelings of isolated or overall bone tenderness along with aches in their muscles

and joints (8). The most lethal effect of vitamin D deficiency is on arteries and vessels reducing blood flow to major organs as in brain and heart resulting in ischemic damages of the structures. Commonly reported medical complication with this deficiency is stroke and post stroke complaints of fractures and bone weakness. Vitamin D deficiency symptoms can be very unclear, including fatigue, general body aches, headache, joint pain diarrhea or constipation, depression and chronic body pain. The normal Vitamin D lab value is >75 nanomols per litre (nmol/L). <25 nmol/L depicts severe deficiency, results from inadequate dietary intake or sunlight exposure(9). There are a number of factors that place individuals at risk for vitamin D deficiency that is aging, skin tone, female gender, obesity, use of sunscreen (10) and chronic kidney diseases. The frequency of vitamin D deficiency increased considerably with age and was greater in females (11). There is a need to take immediate measures to deal with this rising public health dilemma. (Khan et al) Determination of vitamin D status in different age-groups in a community and in different climates of a country is necessary and has important implications for general public 'health (12). Developing population mostly seems to be prone to developing the vitamin D deficiency because of reduced exposure of women to sunlight (commonly due to the use of veil or sun

blocks on exposed skin), cooking excessively, inadequate nutrition, unbalanced diet, unfortified foods consumption (13). There is need to determine vitamin D status in our community and risk factors associated with its deficiency. With magnitude of the deficiency that is seen in population, fortified food items is required. It is more important to make physicians aware of high prevalence of vitamin D deficiency in apparently healthy population. Measures for improving the level of vitamin D status are needed to remove the existence of vitamin D deficiency. There is less awareness of vitamin D intake in our region leading to more cases of vitamin D deficiency in women. Present study will help them to identify critical factors resulting in hypovitaminosis D. Considering the number of risk factors observed in this study, it appears that increasing the awareness in female population about vitamin D and its beneficial effects on health will be an important outcome of study. It might change attitude of society towards dietary practices, level of exposure to sunlight and other indicated risk factors. It will prevent those facing debilitating conditions and lessen burden of diseases in society. We aimed in our study to investigate the presence and severity of Vitamin D deficiency among the stroke patients in developing nations and to investigate which associative co-morbidities

led to massive vitamin D3 deficiency predisposing patients to higher risk of stroke.

MATERIALS AND METHODS

SUBJECTS

We conducted a cross-sectional study from October 2017 to October 2018. Cases, 162 stroke patients i.e. both males and females were chosen from the patients (from neighboring developing nations) admitted to Mediks international Hospital, Islamabad, Pakistan. All cases were first-ever stroking patients and were diagnosed on the basis of CT- scan and MRI reports. Patients fulfilling inclusion criterion (aged between 45-75, Diabetic, Hypertensive, Post-menopausal and Osteoporotic) and exclusion criterion (Use of Vitamin D supplements or other drugs with known effect on serum Vitamin D levels, history of liver and kidney disorders and presence of a rheumatologic or gastrointestinal disease) were enrolled in the study via simple random sampling. Informed consents were taken from all participants.

STATISTICAL ANALYSIS

A specially designed questionnaire about demographic data and history of associated co-morbidities and risk factors was filled for all the patients in order to evaluate associated risk factors responsible for vitamin D deficiency. Five milliliters of venous blood were obtained from all

participants for their laboratory investigation. Vitamin D3 levels, serum alkaline phosphatase and calcium levels were assessed via laboratory testing as their deficiency serves to be one of the potent factors for triggering cerebrovascular accident, we measured 25-hydroxyvitamin D by chemiluminescence test because of its specificity and sensitivity and it was convenient and an easy approach for our participants as well. In addition to this lipid profiles, cholesterol levels were assessed to rule out atherosclerosis as it eventually leads towards vitamin D and calcium deficiency, Bone mineral density was evaluated for assessing osteoporosis in patients and regular monitoring of blood pressure and blood glucose levels was advised and recorded for time duration of the study period to evaluate hypertension and diabetes mellitus that leads towards development of stroke in elderly population. Descriptive Statistical data was analyzed by SPSS version 21. In data analysis, mean / standard deviation was calculated for quantitative variables and frequency/percentages were calculated for categorical variables

RESULTS

The aim of this study was to evaluate the association between vitamin D deficiency

and stroke.

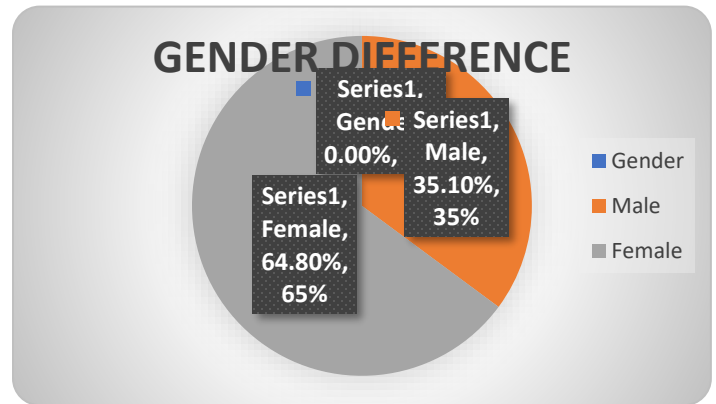


Figure 1: shows percentage of male and female stroke patients and it is evident from the abovementioned results that female gender owes more vitamin D deficiency due to multiple risk factors. In this study there was over all predominance of female gender i.e. 65%

Table 1: Demographic characteristics of Patients

Gender	Frequency	Percentage
Male	57	36%
Female	105	65%

Age Characteristic

Age Range	45-75 Years
Mean Age	60 Years

Table 1 shows age and gender characteristics of stroke patients enrolled in the study with an overall predominance of female gender i.e. 105, 65% and males were 57, 35% out of total 162 patients, the age range was from 45-75 with mean age of 65.26± 5.40.

Table 2: Levels of Vitamin D3 Deficiency in Stroke Patients

Vitamin D3 Deficiency	Frequency	Percentage	p-value
Mild	22	13.5%	0.001
Moderate	40	24.6%	0.001
Severe	100	61%	0.001

Table 2 shows that three levels of vitamin D3 deficiency were observed, mild deficiency was seen in 22 patients i.e. 13%, moderate in 40 i.e. 25% and severe in 100 i.e. 61% out of total 162 patients.

Table 3: Risk factors for Vitamin D3 Deficiency leading to stroke

Risk factors	Frequency	Percentage
Menopause	55	34%
Atherosclerosis	43	26%
Osteoporosis	34	21%
Uncontrolled Hypertension	30	18%

Table 3 shows Associative risk factors leading towards vitamin D3 deficiency in N=162 stroke patients were: Menopause was seen in N=55 patients, (34) %, Atherosclerosis in N=43 patients, (26%), Osteoporosis in N= 34 patients (21%) and Uncontrolled Hypertension in 30 patients (18%). Abovementioned factors were found responsible for vitamin D3 deficiency in N=162 stroke patients.

Table 4: Levels of serum Calcium, Phosphorus and Alkaline Phosphatase

Serum Calcium, Phosphorus and Alkaline Phosphatase levels	Frequency/N	Percentage
Low	84 Patients	52%
Normal/Optimal	78 Patients	48%

Table 4 shows Low Serum Calcium, phosphorus and Alkaline phosphatase levels in N=84 patients (52%) and normal to optimal serum values in N=78 (48%) patients.

It is evident from above mentioned results that Vitamin D3 deficiency serves as a major factor in causation of stroke.

DISCUSSION

The highlight of this study focused on the prevalence of Vitamin D deficiency and its association in causation of stroke. Severe hypo-vitaminosis D was most commonly observed in all the patients reporting with ischemic stroke. It did not only show remarkably inadequate intake of Vitamin D but also reduced outdoor activities during sun. Three major problems resulting in vitamin D deficiency were awareness about importance of Vitamin D, Dietary intake of Vitamin D rich food or supplements and exposure to the sunlight. In a study conducted by El-Hajj Fuleihan G, it was observed the most common cause of vitamin D deficiency among females was menopause (15). These finding correlate with current study where maximum number of females reporting with stroke had menopause. The findings showed not only

decreased exposure to sunlight but less intake of Vitamin D rich food. In one study findings showed hypovitaminosis D in adolescent girls wearing traditional clothing with a (Burka or hijab) in contrast with females wearing western clothes (16). According to Pearce SH et. all study's findings about the effect of drinking enriched milk on vitamin D status which specified that serum 25(OH) D had been improved by raising the daily intake of milk enriched with vitamin D (18). In this study it also inquired if participants are taking any kind of Vitamin D supplements routinely. Unfortunately, most of them were not taking vitamin D or Vitamin D fortified foods. It was found that less healthy habits of taking Vitamin D and calcium regularly is a great concern in hypovitaminosis. Berkovitz S et al demonstrates that bone formation is reduced and uncoupled to bone resorption in mature adolescents with Anorexia Nervosa (eating disorder) in association with low bone density (19). In current study reduced generalized body aches and bone weakness have been reported in post-stroke patients having low levels of vitamin D. All the previous evidences are highly associated with results obtained from current study that vitamin D3 deficiency serves to be the major causation factor of stroke.

CONCLUSION

Vitamin D3 serves as an osteo-protective and neuroprotective agent and its deficiency is highly associated with ischemic stroke as vitamin D3 deficiency raises the risk factor for developing atherosclerosis that is the leading cause of ischemia and eventually ischemia enhances chances of stroke because cerebral tissues lacks prompt blood supply, moreover atherosclerosis provokes thrombus formation and this further potentiates emboli dislodgment in cerebral arteries from peripheral circulation. In addition to this atherosclerotic change in arteries manifest as narrowing of the arterial lumen, compromised blood flow, increased total peripheral resistance and decreased venous output followed by uncontrolled hypertension. The cascade of these events serves to be the risk factor for stroke in vitamin D3 deficient of individuals. Menopause was seen as a serious risk factor for vitamin D3 deficiency as low estrogen levels disturbs calcium and vitamin D3 homeostasis. This condition is further worsened by osteoporosis due to weakened bones. In light of abovementioned facts Low Vitamin D3 levels serves as predictive factor for development of stroke.

RECOMMENDATIONS:

The sole purpose of this study was to highlight neuroprotective role of vitamin D3 as its deficiency leads to series of events that proves to be detrimental for individual's life. Therefore it is highly recommended to add vitamin D3 investigations after the age of 50 years as part of routine lab investigation. Moreover individuals who are at risk for developing its deficiency must be advised with vitamin D supplements along with more exposure to sunlight. In addition to this

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nutritional seminars must be conducted focusing on importance of supplements and natural dietary measures that can be beneficial for patients and can protect them from multiple lethal diseases.

Acknowledgement: We are grateful to all the participating stroke patients.

Conflict of Interest: None.

Source of Funding: None.

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Imaging studies as of Leading Significance in Stroke & Space Occupying Lesion of Brain

Ishaq Khan, S. I. Ahmad Qureshi, Mansoor. A Sheikh. Imran Mansoor, Shahida M.

Computed tomography (CT) scan

Computed Tomography (CT) is a computer supported X rays imaging procedure where intended part of patient is exposed. Then rapidly turned the body the generated signals are processed by computer to make cross sectional images. These images are piled together to shape three dimensional images of patient. These images taken at high resolution can yield better information about infarction and tumor.

Magnetic Resonance Imaging(MRI)

MRI is a medical imaging technique employed to figure out pictures of the anatomy and the physiological processes of the body. These scanners make use of well-built magnetic fields, radio waves and gradients, to generate images of the organs in the body

During pregnancy CT images have no contraindications if there is no exposure of abdomen & pelvis. Patients with renal

diseases may not be advised imaging for contrast, as these materials could worsen kidney damage. Children are relatively more vulnerable to radiation hazards/ therefore imaging equipments should have safety arrangements installed to render it risk free.

Diffusion- and Perfusion-Weighted

MRI(DWI/PWI)

DWI/PWI is novel biomedical technology. This sophisticated imaging procedure is principally useful in [tumor](#) description and [cerebral ischemia](#). DWI abnormalities typically progress into infarction in humans, and correspond to the ischemic core. PWI, on the other hand, provide information on the hemodynamic status of the tissue and can detect impaired perfusion in both the ischemic core and the surrounding brain regions, thereby complementing the information derived from DWI

In the early hours of stroke, brain tissue with irregular perfusion weighted image (PWI) is relatively larger than diffusion weighted image (DWI). This pathological variance in tissue at risk of ischemia is alarming.

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CASE REPORT

DYSTONIC TREMOR

Ishaq Khan, Mansoor. A Sheikh, S. I. Ahmad Qureshi, Imran Mansoor, Shahida Mansoor

In the pathogenesis of movement disorders cerebellum plays a pivotal role. The main output spot is dentate nucleus in cerebellum. In the postural Dystonia being abnormal muscle contraction resulting postural abnormality of face, neck, limbs and trunk. Diagnostic challenges are posed in diagnosing dystrophic tremor from essential tremor, physiological tremors, psychological tremors, parkinsonian tremors and orthostatic tremors.

Dystonic tremor is associated with shaking movements of head and neck muscle. In case contractions are regular and balanced on both right and left side. Then this clinically is characteristic of essential tremor. In cervical dystonia (spasmodic torticollis) due to passage of erratic signals from brain to neck muscles head and neck will deviate to one side than other. In Dystonic hand tremors there is writing disability due to shaking movements of hand and fingers. Dystonic vocal tremor is associated with garrotic sound due to involuntary spasm of laryngeal adductor

muscles. In case of involuntary spasm of the adductor muscles, a whispery voice due to overactive abductor muscles is observed. laryngoscope examination of vocal cord could help in detection of vocal cord movements.

A female patient age 26 years developed neck stiffness with agonizing pain specifically during work. Earlier to illness with no history of movement disorders. She developed a stiffness and tremor left side of neck and shoulder. Affected side had prominent neck muscles. She had insomnia restlessness fearful and panic. She was medicated with anxiolytics and muscle relaxants, but with minimal improvement. She had no history of surgery, head injury, drugs allergies. MRI brain scan had no abnormality. Then she was medicated with trihexylphenidyl and clonazepam with minimal improvement. Later treatment included botulinum toxin(Botox) injections, which has significantly help in reducing intensity of tremors.

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Pathophysiology of Low Backache

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Abstract

Low backache (LBA) is a chronic pain disorder in the lower part of back lingering for minimum of three months. Worldwide it is the major cause of absence of workforce loss of working hours and economic loss that may linger on for longer. Stress, anxiety with depression may further complicate the clinical picture.

Introduction

LBA is an important cause of human morbidity, therefore it is important to diagnose and plan treatment. Pain might arise from nerve roots, muscle attachments, abdominal cavity, bones joints and intervertebral discs. A detailed history followed by clinical examination is important to find out the cause of pain. Pain lasting more than six weeks should have magnetic resonance imaging (MRI). As per research, MRI lesions in descending order of frequency are degenerated bulge, herniated disc and spinal stenosis. Thousands of X-Rays, CT and MRI scans have been performed yearly. Work loss in time ranges from days to weeks amounting to loss of billions of dollars in productivity.

During rest and moment supporting ligaments help in avoiding damage at time of hyperflexion and hyper extension.

Zygapophyseal joints in between vertebral bodies flanked by intervertebral disc facilitate the mobility of the vertebral column.

Main integration site of sensory nerve is in dorsal horn of spinal cord. These nerves are grouped into facilitating and inhibitory pathways. When injurious stimuli continue then pain becomes chronic. In fact, minimal changes in posture could easily drive long-term inflammation in the joints, ligaments, and muscles involved in the stability of the low back column, contributing to both peripheral and central sensitization. Furthermore, joints, discs, and bone are richly innervated by delta fibers whose continuous stimulation could easily contribute to central sensitization. The most important cause of low back pain is muscle spasm and muscle tension, resulting from Spinal stenosis, fibromyalgia. Disc herniation produce inflammation in dorsal roots spreading to buttock termed as radicular

pain. Moreover impairment of motor nerve fibers leads to diminished reflexes. Although radiculopathy and radicular pain often accompany one another, radiculopathy may be experienced without pain and vice versa. Patient description of radicular pain coupled with physical examination indicates lumbar disc herniation. This may be confirmed by MRI or Computed tomographic scan.

Facet joint syndrome is LBP with or without somatic referral to the legs terminating above knee repeatedly radiating to groin or thigh. Pain is more on flexion, bending also long standing. X rays lumbar spine may show column instability. Pain arising from sacroiliac joint could be due rheumatic diseases. On MRI findings of bilateral inflammation and particular effusion is sufficient evidence of rheumatic disease.

Lumbar spine stenosis are evidenced by gradual narrowing of central spinal canal, hardness of neuromuscular structures and

tapering of spinal lateral process. Clinical manifestations are central back pain, muscle weakness limping gait and pricking or burning sensation. Pain is relieved on sitting, lying, and flexion or stooping. It is worsened by lumbar extension or long standing. There is motor weakness, radiculopathy on bendy moments and impaired sensation.

Vertebral disc degeneration is designated as the primary cause of low back pain. In nearly 39% cases it occurs exclusively of spinal deformity. Inflammation of disc by pro inflammatory degradation enzymes and cytokines and anaerobic bacterial invasion, growth of sensory nerves are additional cause. MRI could show edema in vertebral end plates and vertebral narrowing.

Conclusions: Low back pain being the compelling manifestation motivating persons look for treatment. It has tremendous socio economic impacts.

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CASE REPORT

PARANOID PERSONALITY DISORDER

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Paranoid Personality Disorder (PPD) PPD is one of a group of conditions termed Cluster A. Such Individual has eccentric personality disorders associated with abnormal thinking and behavior. Notable manifestations are suspiciousness, distrust, misconception to be under guard to disgrace, harm or intimidate. Assuming hidden meaning in the blameless comments, observe others with hasty look insinuate impractical attack on others morality, continual doubts about spouse. Highly reserved in social life. A PPD individual is irritable, resentful, prejudiced decline to disclose personal information, fearing may retaliate. At 18 years of age PPD continue to advance, therefore conclusive diagnosis could be made. PPD is relatively rare; Researchers estimate that it affects 0.5% to 4.5% of the general U.S. population. People with PPD do not experience hallucination or delusion as those with schizophrenia, schizoaffective disorder. Usually, PPD individuals are from low income background, divorced, separated or unmarried. According to research, early age PPD individuals have neglect in emotional, physical caring. Could result in anxiety with

or without depression therefore, individuals with All these PPD look for care.

Detailed history will disclose early childhood Emotional & Physical Neglect care. Psychotherapy focuses on increasing self confidence, understanding, humanizing social interaction, communication, attitude and self respect. In the event of severe anxiety with or without depression anti psychotic drugs may benefit. Cognitive behavioral therapy to build up social interaction and positive thinking.

Case Study PPD: 26-year-old student developed rigorous depression after he fired from work. His family members for insomnia aggressiveness undue gaze fear distressing hatred others. In early childhood bullying other children mounting to aggressive attacks at minor conflicts. He has only one friend co professional driver Mr. Shani case study highlights description of paranoid personality. Seeking treatment when he got depression and fired from job. Got severe conflicts at home, aggressive behavior and panic attacks.

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