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CORRELATION BETWEEN THE METABOLIC SYNDROME AND DEPRESSION IN REGARD OF POLYPATHOLOGY AND SPIRITUAL VIEW

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Abstract

Any disease can be regarded as a result of the influence of external factors, but also as a spiritual imbalance of the human being. The link between the metabolic syndrome and depression on the basis of this presumption was studied, considering the fact that the imbalance of the so called ‚matter' may have the origin in a spiritual imbalance and vice versa. In order to study the correlation between metabolic syndrome-depression, 66 patients with metabolic syndrome were chosen, to whom there were applied questionnaires for depression. The patients were selected during January 2012 and May 2012 in the Vth Internal Medicine and Geriatrics-Gerontology Clinic, from the Railway Hospital Iasi. The preliminary data showed that depression (of different degrees) was associated to the 56 out of the 66 patients with metabolic syndrome (84.84%). The obese patients were the most affected suggesting the important part of the negative feelings (of unacceptance and self-rejection) played in their case. The ways of helping patients with these associated pathologies require a very complex approach, based on a interdisciplinary thinking and acting. Different medical specialists are needed, as well as a psychologist and even a father confessor, because cultivating Christian virtues will help patients fight stress, increase faith and love. Continuous prayer will balance their inner world, recreating it in health, peace and harmony.

Keywords: depression, diabetes mellitus, hypertension, metabolic syndrome

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1. Introduction

The physical and moral self of every human being consists of three categories of manifestations: spirituality is expressed through feelings and instincts, the intellect through the faculty of reasoning, and the human body through its physiological functions. One can notice a circuit that includes the body and spirituality, the body being a regenerator of intellectuality and this one being an amplifier and a guide for the spirit. The 'vital factor' has a spiritual nature, in permanent link with the biological nature, thus realizing a transcendental link between Science and religion. Any modification in the body comes not only from the influence of external factors, but also through a „spiritual imbalance of the vital factor" inside us [1].

Since oldest times, healing the body and soul was a huge challenge that forced the human being to unify his dual nature. Disease generally forces to adapt and understand, because it involves sufferance, which every being wants to avoid. Traditional medicine considered the disease coming from the whole to the part, while modern medicine lost itself in details and generally starts with studying impaired organs and systems, thus forgetting the holistic view on the human being.

We have studied the link between the Metabolic Syndrome and depression on the basis of these presumptions, considering that the imbalance of the so called 'matter' may have the origin in a spiritual imbalance and vice versa.

2. The metabolic syndrome

The metabolic syndrome represents a sum of metabolic dysfunctions with high risk of cardiovascular disease. The *diagnostic criteria of the metabolic syndrome* were added and modified in time by specialists, but briefly the definition is based on obesity, hypertension, diabetes mellitus and dyslipidemia (increased amount of lipids in the blood [2].

The mechanisms of the complex pathways of metabolic syndrome are still in the view of world wide researchers. The pathophysiology is extremely complex and has been only partially elucidated. The most important factors are weight, genetics, endocrine disorders, aging, sedentary lifestyle.

There has been noticed an increased prevalence of the metabolic syndrome in the last years associated with a burst of diabetes and obesity incidence. For example in the USA the prevalence was of 34% in 2009 [3]. There are studies in Romania that prove the importance of this disease in our country: the study from Urziceni (2001-2005) showed an incidence of 11.9 % of the metabolic syndrome [4], the study Sephar showed a prevalence of 21% in 2005 and the study from Cluj-Napoca an incidence of 11.2% [5].

2.1. The correlation between metabolic syndrom and atherosclerosis

The importance of the metabolic syndrome is connected to its multiple complications, such as the increase of coronary heart disease and stroke (which are the two leading causes of morbidity and mortality in the world) [6, 7]. The pathway to these complications passes through insulin resistance and impairment of the vessel wall leading to atherosclerosis. Atherosclerosis represents a progressive process whose final income is the atheromatous plaque, expressed by ischemia or necrosis, according to the degree of the arterial obstruction and its persistence. Atherosclerosis starts during the first years of life, being characterized by a remodelling of arteries leading to subendothelial accumulation of fatty substances called plaques. The build up of an atheromatous plaque is a slow process, developed over a period of several years through a complex series of cellular events occurring within the arterial wall, and in response to a variety of local vascular circulating factors. Together with this fatty accumulation an important part in the pathophysiology of atherosclerosis is played by inflammation [8].

2.2. The correlation of the metabolic syndrom with depression

The incidence of depression has risen every year since the early 20th century, so that the World Health Organization considers it the disease of the 21st century. There are probably many reasons for this, although most studies point to significant socioeconomic changes. The reported prevalence of depressive disorders varies throughout the world, and it seems to be higher in the most civilized countries [9]. It is the first cause of disability in USA and on the 5th place in all the other regions except Africa, where it is on the 11th place [7, 10].

A definition of depression is „an emotional state that causes a person to lose his interest and pleasure of daily activities" [11]. According to DSM-IV the diagnostic of depression involves: depressed mood, markedly diminished interest or pleasure in all or almost all activities, significant (>5% body weight) weight loss or gain or increase or decrease in appetite, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness or inappropriate guilt, diminished concentration or indecisiveness, recurrent thoughts of death or suicide. There must be 5 symptoms present for at least 2 weeks, and one of the symptoms must be depressed mood or loss of interest [9].

Ongoing sad, lonely, empty or blue feelings, hopelessness and or negativity, irritability, restlessness, anxiety, helplessness, despair, headaches, cramps or digestive problems, joint or back pains can be associated.

Being accompanied by feelings of anxiety, guilt and hopelessness, insomnia and other problems that directly affect our emotional answer, depression leads to elevated stress levels that will increase blood pressure. If the process repeats, hypertension may occur, as well as damage to blood vessels.

Clinical and experimental studies indicate that stress and depression are associated with the up regulation of the immune system, including increased production of pro-inflammatory cytokines (that are also involved in atherosclerosis). When administered to patients or laboratory animals, some of these cytokines induce typical symptoms of depression. It is known that cytokines modulate brain neurotransmitters and the activity of the hypothalamic-pituitary-adrenal axis, both of which are disturbed in depression [12].

Association between obesity and depression has repeatedly been established [13], yet new and surprising evidence prove that the gene variant associated with obesity is also associated with protection against major depression, independently of its effect on body mass index [L. Abrams, *'The Obesity Gene' Protects Against Depression*, The Atlantic Health channel, Nov 21 2012]. This reminds us of the fact that adiponectine, exclusively secreted from adipose tissue, is a protective factor against metabolic syndrome and diabetes mellitus [14].

It is thus possible that the real problem is that we think of being obese and happy as counterintuitive. "Overweight and obesity, can induce low self-esteem and body dissatisfaction", Luppino explained, "especially in Western countries where thinness is often considered a beauty ideal. Both low self-esteem and body dissatisfaction are known to increase the risk of depression." [13] These results suggest that we might do well to rethink just how obvious the connection between being obese and being depressed really is.

Obesity may create, apart from organic complications, important psychic imbalance, connected to the aesthetical aspect. The huge amount of surgical interventions worldwide prove the inferiority complexes of many of the obese persons, together with a stigmatizing social view. Often, the depressive symptoms are connected to the aesthetic alteration and constraints in the metabolic syndrome.

The link between metabolic syndrome and cardiovascular disease has been widely studied, while the correlation between metabolic syndrome and depression remains an open subject, also proved but insufficiently explained by other studies [15, 16].

2.3. The spiritual approach to depression

From the Orthodox point of view is considered that bad passions can torture the soul; in the same way the bad habits that cause metabolic syndrome open the gate to depression, which is an expression of the soul's pain.

One passion of our material body, the greed of the stomach, leads to obesity, hypertension, diabetes and dyslipidemia. Fornication is also the passion of our 'flash' that weakens the body, leading it to stress and cardiovascular disease. The passion for money leads to stress and loss of the spiritual values; it is well known the fact that rich people are not happier, but often lost in anger and sad feelings, unless they regard wealth just as a tool for building a better spiritual life for themselves or society.

Sadness itself is considered a bad passion and an important sin, because those who believe in Christ should always be happy. Jesus told us that "I have come so that they may have life, and that they may have it more abundantly" (John 10.10).

Sadness is considered a sign of the original sin. By separating from God, the Source of Light, Love and Truth, by losing his continuous connection to his Father, the man experienced pain, remorse and sadness. When one commits actions that destroy the body or the soul, such as let the greedy nature manifest through excessive eating, drinking, or taking drugs, it is a victory of the evil against our human nature that will, sooner or later, bring sadness, remorse and disease.

Sadness, by striking the soul and the body, imbalances our inner world, leading to despair, feelings of worthlessness, inappropriate guilt, diminished concentration, recurrent thoughts of death or suicide, thus to depression. The poor victim will feel unable to fight anymore, becoming inert, lazy. Laziness, considered another passion, is aggravating both the metabolic syndrome (inactivity increases obesity) and depression, leading to indifference versus external stimuli, self-isolation and apathy.

The cause of all these is in fact forgetting about the huge power inside us, given by the Holy Spirit. Indeed, "God has not given us a spirit of fear, but of power and of love and of a sound mind" (2 Timothy 1.7).

Saints Varsanufie and John consider that there are diseases coming from our nature, that we can get rid of by living in care and Christian discipline for our body and soul. But there are also diseases coming from God, that we can escape from through repentance [17].

Scientific and 'based-on-evidence medicine' considers that almost all diseases have exterior causes, but maybe it will have to admit, one day, that in most of the cases the real cause is inside us.

Especially in chronic and acquired diseases, it's our selfishness, the lack of real commitment to God, the lack of real belief and love that brought us to pain. Religion says that if we lived perfectly melt in God's Heart no disease could touch us.

Psychosomatic medicine considers that 90-95% of all physical diseases are based on a psychic imbalance. If we had really been with trust in our Lord, would we have had psychic distress? Jesus told us "In Me you may have peace. In the world you will have tribulation; but be of good cheer, I have overcome the world" (John 16.33).

2.4. Therapeutical approach of the metabolic syndrome

The therapeutic approach of the metabolic syndrome means an association between optimizing the lifestyle and pharmacotherapy pointing to all risk factors.

Optimizing life style is recommended to sedentary patients, with inadequate dietary habits, obese, smokers. Diet is indicated for reducing weight by decreasing caloric income and avoiding cholesterol, salt, sugar. Fruits, cereals, vegetables, fish, unsaturated fat are especially recommended. Weight loss has been proved to have a beneficial impact on the cytokine level. Physical exercise is needed (walking at least 30 minutes a day), abandoning smoking and the excess of alcohol.

The 'polypill' is a new concept proposing for a single pill to include a number of key drugs: aspirin, an ACE inhibitor, a beta-blocker, a statin, a diuretic and folic acid [18].

Therapeutic education and optimizing psychosocial factors requires the co-operation of a specialist in nutrition with a psychologist, but also a spiritual help, in order to develop the confidence in obtaining a mental equilibrium and in the therapeutic approach.

3. Method

In order to study the correlation between metabolic syndrome-depression, we have chosen 66 patients with metabolic syndrome, to whom there have been applied questionnaires for depression.

The patients were selected between January 2012 and May 2012 in the Vth Internal Medicine and Geriatrics-Gerontology Clinic, from the Railway Hospital Iasi, this selection being part of a larger study which is still carrying on. We have included patients with at least three of the five definition criteria of the metabolic syndrome [19] and patients that have given their acceptance for participation to the study. Patients with metabolic syndrome completed Montgomery Scale or Beck Depression Inventory (the most widely world wide used scales for depression).

4. Results and discussions

The first preliminary data of our study showed that depression (of different degrees) was associated to 56 out of the 66 patients with metabolic syndrome (84.84%), which is a higher prevalence than noticed in other studies [15, 16, 20].

The obese patients were the most affected (presenting associated depression in all cases), suggesting the important part of the negative feelings (of unacceptance and self-rejection) played in their case, apart from all the other physiopathological neuroendoncrinological and inflammatory modifications.

The important risk for obese to develop depression is well known, the same with the risk of depressive patients to become obese [20, 21].

Most of the patients presented co-morbidities, which are known to increase the mortality risk [22]. Among the studied patients, we have found the following associations:

- 74.24% had hypertension, obesity and dyslipidemia;

- 81.82% had hypertension, diabetes and dyslipidemia;
- 87.88% had diabetes, obesity, dyslipidemia;
- 80.26% had hypertension, obesity, diabetes.

The preliminary data suggest that the most important risk for depression appeared at patients with obesity and hypertension. Obesity is important by its very important negative impact on the self-imaging, while hypertension is probably important by the neuroendocrin mechanisms involved.

In order to find ways of influencing the imbalance of the both the 'material' and 'spiritual' part of a patient with metabolic syndrome, we have to recall the possible causes for depression:

1. genetic causes: the importance of the genetic inheritance varies, according to different studies between 30% and 70% [9];
2. biological causes:
   - mediators deficiencies (involving especially serotonin) [9];
   - different organic diseases: cancer, Parkinson, chronic diseases out of which metabolic syndrome) [20];
3. psychological factors: interior conflicts, feeling of being neglected, rejected, abused, low self esteem, negative way of thinking;
4. environmental factors: pollution, radiation, lack of exposure to light;
5. social factors that lead to stress: chronic and painful diseases, divorce, losing someone dear, losing job, financial problems [9];
6. spiritual causes: losing the connection with our true self, and thus with our Creator.

There is an increased interest in the possible correlation between the metabolic syndrome and depression. Among the hypothesis for this possible link we mention:

- psychological problems would be connected to metabolic disorders by visceral adiposity accumulation; while in stress, the body produces an increased amount of adrenaline and cortisole, which increases blood pressure (hypertension) and glycaemia (diabetes mellitus). Depression is particularly involved in the last stage of stress, when the adapting mechanisms are overwhelmed and feelings of fear, helplessness, anxiety, lack of control, apathy appear. As a natural mechanism of fighting stress the reaction that can appear is overeating and later obesity.
- Metabolic syndrome would be a neuroendocrine disorder (the hypotalamo-pituitary-adrenergic axis playing a part in visceral obesity and in metabolic syndrome's development).
- Depression is associated with the up regulation of the immune system, including increased production of pro-inflammatory cytokines (that are also involved in atherosclerosis) [8, 23].
- Losing the spiritual dimension of life, with no true authentic scale of values, the human being is prone both to despair, feeling of uselessness and personal powerlessness (characteristics for depression), and also to unhealthy refugee through material compensations, such as excessive

eating, drinking, smoking or taking drugs (that may lead to metabolic syndrome) .

Considering the possible connection between the metabolic syndrome and depression, it means that a wise treatment will address three major directions:

1. The medical approach, which is also addressing two major directions:

a. A so called 'healthy' way of living - already mentioned, with giving up habits that increase the cardiovascular risk (such as smoking, drinking, eating excessively salty, fatty, being sedentary) , but also open pathway for sins such as greediness, laziness, dissoluteness. A good regulatory effect have some aliments (such as bananas - rich in serotonin, but also peaches, mushrooms, avocado, carrots, beans, almonds, sesame, parsley - rich in antioxidants) and also some plants (such as mint, basil, ginseng, gingko biloba, passiflora, Saint John's wort, fennel) also rich in antioxidants and providing endocrinological balancing.
b. Medicamentous approach of hypertension, obesity, dyslipidemia, diabetes, with a careful individualized treatment in every case, according to all associated diseases.

2. The psychological approach: psychotherapy, spending free time in nature, chromotherapy, meditation

3. The spiritual approach:

Modern society, through its permissive way of accepting sins (such as fornication, greed, excessive love for money, laziness, cheating, even steeling) leads to the asleep of the personal and social consciousness. The modern human being, getting accustomed to the sins, often loses its discernment and the sense of appreciating what's good or bad, sin or virtue. People tend to forget that "God knows better than us what we need. He gives us what's best for our salvation. He may use disease because it is by its nature a very strong mean of awakening that one whose spirit is sleeping and making him feel, through the disorder of the body, the less evident problem of the soul." [24]

Everything coming from outside and restricting us (including disease) is allowed by God with one purpose: so that we can see the real problem inside us and appeal Him with love. Until God Himself comes and enlightens us, we don't really know ourselves and can't be perfectly healed [25].

Love, belief and hope are the greatest Christian virtues, opposed to despair. True Christians don't run away from distress or from persecutions, because "My strength is made perfect in weakness. Therefore most gladly I will rather boast in my infirmities, that the power of Christ may rest upon me. Therefore I take pleasure in infirmities, in reproaches, in needs, in persecutions, in distress, for Christ's sake. For when I am weak, I am strong." (2 Corinthians 12.9-10)

As Father Stăniloaie teaches us, the virtue of hope, as any other virtue or gift of the spirit, doesn't rely on our human will but it's the Faith and Divine Grace that work for us [26].

Modern people are trying their best to run away from pain, but saints teach us (frequently by their living example) that any of our problems, including disease, has a purifying, cleaning value. No matter how great the stress, the pain or the disease, a true Christian should remember that all these challenges are given to us with a Divine reason: our salvation. In a way, our entire life is a fight against the evil, the sin and the pain. Suffering in itself is a temptation, the same as all the sins that lead us to suffering. The saint parents of the Orthodox Church tell us that all of our burdens, including the diseases, have to be accepted with humbleness and patience [27].

An optimistic attitude of a loving and caring person will be a wise prophylaxis against stress. Being careful to the needs of the others will help us forget our sorrow, forget about 'compensatory' refugees such as eating too much, drinking alcohol, smoking. Being less focused on our selfish desires and concentrating on the needs of the others will enrich us with Christ's healing and nourish us with love. Feelings like hope, deep gratitude for our Creator, forgiveness, love are deeply beneficial and regenerating. Cultivating Christian virtues will help increase the faith in God's help and continuous prayer will balance the interior world, recreating it in peace and harmony.

The best way of understanding and approaching the metabolic syndrome and the depression is an interdisciplinary team that can improve not only the biological level of the patient, but also the emotional, mental and spiritual one.

5. Conclusions

The present study presents the preliminary data regarding the frequent association between the metabolic syndrome and depression from a new perspective.

From the 66 studied patients with metabolic syndrome, depression was associated with 56 of them (84.84%), which is a higher prevalence than noticed in other studies.

Obesity seemed most frequently associated with depression, suggesting the important part of the negative feelings (of unacceptance and self-rejection) played in this case, apart from all the neuroendoncrinological and inflammatory modifications.

The ways of helping patients with these associated pathologies require a very complex approach, based on interdisciplinary thinking and acting. Different medical specialists are needed, as well as a psychologist and even a father confessor, the final goal being to improve not only the biological level of the patient, but also the emotional, mental and spiritual one.

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