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RESEARCH ARTICLE

BIOCHEMICAL DISORDER OBSERVED IN A DYSAUTONOMIC: ABOUT A CASE

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Abstract

The autonomic nervous system (SNA) innervates all the organs and ensures the homeostasis of the body, the disorder of the latter causes a pathology called dysautonomy; in this work we will try to report the biochemical disorders observed in a dysautonomic patient. This is a 32-year-old patient who went back to the cardiology department of the 3rd military hospital of Laayoune for high Blood pressure and headaches; a complete etiological assessment is done and who found hyperlipidemia and hyperglycemia; echocardiography is normal, holter tensionel showed high diastolic arterial pressure; exploration of the autonomic nervous system gave sympathetic hyperactivity. Biochemical disorders have defined the metabolic syndrome, which is strongly related to morbidity and cardiovascular mortality. The laboratory plays a valuable role in determining the criteria defining metabolic syndrome.

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Introduction:-

The autonomic nervous system (ANS) innervates all the organs and ensures homeostasis by modulating their function by orthosympathetic and parasympathetic double innervation.

ANS plays a particularly important role in the cardiovascular system by finely regulating blood pressure and heart rate[1]. The SNA modules different functions: sensory, visceral, and neuroendocrine. Its disorder is referred to as ANS dysfunction or dysautonomy [2].

The purpose of this work is to see the biochemical disturbances of this chronic pathology.

Observation:-

Mr M.E aged 32 ,with a BMI of 32 kg/m² and without a particular history , who presented himself to the cardiology department of the 3rd military hospital of Laayoune for a hypertension: 160/95 mmHg , accompanied by chronic headache, the patient also has other clinical signs:

- *heaviness of the legs
- *Orthostatic hypotension
- *mictional disorder
- *asthenia
- *vertigo

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A biological assessment, transthoracic Doppler echocardiography and holter tensionel are requested .

Echocardiography is normal while holter showed an increase in diastolic arterial pressure The standard biological assessment - made on device ABBOTT Architect plus Ci 4100 (**Figure 1**)- objectified dyslipidemia and hyperglycemia:

*Total cholesterol: 3.10 g/l

*LDL cholesterol: 2.3 g/l

*Triglycerides: 2 g/l

*Fasting glucose: 1.18 g/L

A complementary and specific biological assessment looking for plasmatic methoxylated derivatives , aldosterone , rénine; the latter are found without abnormality. Then the patient is referred to a specialized structure for an exploration of the SNA which showed a dysautonomic profile:

*central and peripheral alpha and beta sympathetic hyperactivity.

*intense vagal response.



Figure 1:- Picture showing the ABBOTT Architect plus Ci 4100 in the Central Laboratory - 3rd Military Hospital; LAAYOUNE-

Discussion:-

The detection of hyperlipidemia associated with hyperglycemia is part of the clinico-biological criteria that define metabolic syndrome caused by dysautonomy. Metabolic syndrome is a combination of several metabolic and cardiovascular risk factors such as obesity, high blood pressure, glucose intolerance, and hyperlipidemia [3]. The first official definition of this syndrome appeared in 1999 by the World Health Organization (**Table 1**)[4].

The importance of metabolic syndrome stems from its increasing prevalence worldwide and its association with a remarkable increase in cardiovascular morbidity and mortality [5]. People with metabolic syndrome are five times more likely to develop type 2 diabetes (if not already) [6] , a three times higher risk of having a myocardial infarction or stroke and a risk of death twice as high [7].

These biochemical disturbances and this metabolic syndrome is explained by the sympathetic hyperactivity observed in this patient or the interest of introducing a treatment that aims to protect the cardiovascular system namely the veinotonics and antihypertensives.

Table 1:- WHO Clinical Criteria for Definition of Metabolic Syndrome.

<p>A- Insulin resistance identified by one of the following criteria:</p> <ol style="list-style-type: none"> 1- Type 2 diabetes 2- fasting hyperglycemia 3- glucose intolerance <p>B-Plus 2 of these criteria:</p> <ol style="list-style-type: none"> 1-HTA (PAS \geq 140 mm Hg or PAD \geq 85 mm Hg) or antihypertensive treatment. 2-Triglycerides \geq 150 mg/dl (1.7 mmol/L) 3- HDL cholesterol $<$ 35 mg/dl ($<$ 0.9 mmol/L) for men and $<$ 39 mg/dl ($<$ 1 mmol/L) for women. 4- BMI $>$ 30 kg/m² or hip ratio $>$ 0.9 in men and $>$ 0.85 in women. 5- albuminuria \geq 20 mg/min or albumin/creatinine \geq 30 mg/g

Conclusion:-

SNA [8-9] is barely sketched but it is well neglected during medical studies while it regulates practically all the unconscious functions of the body, such as the cardiovascular system; blood pressure and heart rate. and its disruption causes serious metabolic and vascular disorders or the role of the laboratory has unearthed this biochemical dysfunction observed in the metabolic syndrome related to dysautonomy.

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