



# LIFESTYLE INTERVENTION FOR THE MANAGEMENT OF CHRONIC NONCOMMUNICABLE DISEASES: HYPERTENSION, DYSLIPIDEMIA, INSULIN RESISTANCE AND OVERWEIGHT IN A MALE PATIENT. CASE REPORT

INTERVENCIÓN EN ESTILOS DE VIDA PARA MANEJO DE ENFERMEDADES CRÓNICAS NO TRANSMISIBLES: HIPERTENSIÓN ARTERIAL, DISLIPIDEMIA, RESISTENCIA A LA INSULINA Y SOBREPESO EN PACIENTE MASCULINO. REPORTE DE CASO

Natalia Delorenzo Ch <sup>1,a</sup>

## ABSTRACT

**Introduction:** Chronic noncommunicable diseases (NCDs) are defined as diseases of long duration, slow progression, that do not resolve spontaneously and that rarely achieve complete cure<sup>(1)</sup>. Cardiovascular diseases (CVD), cancer, chronic respiratory diseases and diabetes stand out. NCDs cause 41 million deaths each year (71% of the world total). Cardiovascular disease accounts for the majority of these deaths (17.9 million per year)<sup>(2)</sup>. In addition to causing premature deaths, these diseases lead to complications and disabilities, limit productivity, and drug treatments are expensive, so early detection and timely treatment should be a priority<sup>(2)</sup>. Lifestyle medicine (MEV) has gained relevance in the prevention, treatment and reversal of most NCDs, directly addressing their causes<sup>(3)</sup>. **Clinical Case:** We will present the case of a young man with multiple risk factors and a diagnosis of arterial hypertension, dyslipidemia and insulin resistance. We carry out an intervention through the MEV to improve the patient's condition and health. **Conclusion:** At the 6-month follow-up, significant changes in habits and laboratory parameters were achieved.

**Keywords:** Lifestyle, Chronic noncommunicable diseases, Cardiovascular diseases.  
(Source: MeSH – NLM)

## RESUMEN

**Introducción:** Las enfermedades crónicas no transmisibles (ECNT) se definen como enfermedades de larga duración, lenta progresión, que no se resuelven espontáneamente y que rara vez logran curación total<sup>(1)</sup>. Destacan las enfermedades cardiovasculares (ECV), cáncer, enfermedades respiratorias crónicas y la diabetes. Las ENT causan 41 millones de muertes cada año (71% del total mundial). Las enfermedades cardiovasculares constituyen la mayoría de estas muertes (17.9 millones al año)<sup>(2)</sup>. Además de ocasionar muertes prematuras, estas enfermedades dan lugar a complicaciones y discapacidades, limitan productividad y los tratamientos farmacológicos son costosos, por lo que la detección precoz y tratamiento oportuno debiera ser prioritario<sup>(2)</sup>. La medicina de estilos de vida (MEV) ha cobrado relevancia en prevención, tratamiento y reversión de la mayoría de las ECNT, abordando directamente sus causas<sup>(3)</sup>. **Caso Clínico:** Expondremos el caso de un joven con múltiples factores de riesgo y diagnóstico de hipertensión arterial, dislipidemia e insulinoresistencia. **Conclusión:** Realizamos una intervención a través de la MEV para mejorar condición y estado de salud del paciente. A los 6 meses de seguimiento se logró cambios en hábitos y parámetros de laboratorio significativos.

**Palabras clave:** Estilos de vida, Enfermedades crónicas no transmisibles, enfermedades cardiovasculares  
(Fuente: DeCS – BIREME)

<sup>1</sup> Centro de salud y medicina humana - Casa Vive, Concepción. Chile.

<sup>a</sup> Surgeon; Lifestyle Medicine.

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## INTRODUCTION

NCDs cause 41 million deaths each year (71% of the world total). Cardiovascular diseases constitute the majority of these deaths (17.9 million per year)<sup>(2)</sup>.

A problem of such magnitude is a reflection of the structural inability to prevent and mitigate its main risk factors and to control its consequences. On the one hand, the lack of effective public policies leads to an accelerated growth in the consumption of substances such as tobacco and alcohol, lack of physical activity, inadequate diet abundant in processed foods, excessive use of screens, poor development of interpersonal connections and connections with nature, among others.

On the other hand, there is a deficit in education and information provided to the population on the importance of preventing these pathologies.

Lifestyle medicine has gained relevance in the prevention, treatment and reversal of most NCDs. As defined by the American College of Lifestyle Medicine, SLM is the use of an evidence-based therapeutic intervention that includes plant-based and whole grain dietary patterns, promotion of physical activity, restful sleep, stress management, avoidance of risky substance use and abuse, and positive social and environmental connectedness, delivered by trained clinicians to prevent, treat, and often reverse chronic disease<sup>(4)</sup>.

The following is a case report of a patient who after presenting a hypertensive crisis is diagnosed with mild hypertension, mixed dyslipidemia and insulin resistance. The therapy performed shows the effectiveness and power of intervening in the habits and lifestyles of patients.

## CLINICAL CASE

A case of a 36-year-old man, professional in the marketing area, who lives in Santiago, Chile is presented. His medical history includes overweight, sedentary lifestyle and work stress. In December 2019 he presented a hypertensive crisis (180/120) and was attended in the emergency department. They performed pressure studies and holter, with which they diagnosed "mild hypertension" and indicated chronic treatment with Losartan 50 mg/day.

His habits and rhythm of life worsened during the year 2020, strongly affected by the pandemic situation and months of quarantine. His diet was based on ultra-processed foods, lean meats, dairy products, grains and refined flours. In September 2020 he consulted for symptoms of GERD, performed EDA and discarded associated organic damage. Treatment with PPI (esomeprazole 10 mg/day) was indicated.

Complementary tests showed alterations in the lipid profile and altered fasting glycemia associated with increased basal insulin. They decided to start diet therapy based on restrictive feeding with hypocaloric and dietetic products, together with the use of Metformin and Phentermine (37.5 mg). He maintained for a month but a new associated symptom (insomnia of conciliation) forced him to abandon treatment and decided to change habits.

He moves out of Santiago and starts working from home, dedicating less daily hours to it.

He goes to the first consultation where we propose management from MEV as a basis to address his condition: he is educated about the 6 pillars on which we will work, with emphasis on reducing stress levels, the importance of incorporating physical activity and education about food based on plants and whole grains.

It is important to highlight certain details of his habits prior to the episode that made him consult for the first time in December 2019. Patient M refers that for years he has sustained high rates of work stress associated with long days of exposure to screens in a seated position, without taking active breaks during the day. He reports waking up very tired and having breakfast immediately and automatically, always based on highly refined cereals (packaged sliced bread with accompaniment that varies between sausages and other accompaniments such as jam or marmalade).

Starts the workday and most days does not take a lunch break. Sometimes he reports eating a sandwich or a quick snack while sitting at the computer.

Dinner consists of some fast food that he orders at home at about 10 p.m. and it occurs while he is lying in his bedroom watching a movie or TV series. He usually goes to sleep between 23:00 and 00:00 hrs.

No active smoking habit and is considered a social drinker (at least once a week).

During the first consultation, integral management from the MEV was proposed as a strategy to reduce cardiovascular and metabolic risk; the importance of making a loving and gradual change in his lifestyle was explained: incorporating physical activity to his daily activities, eliminating and/or distancing the consumption of animal and ultra-processed products, trying to migrate towards a diet eminently based on plants and whole grains, ideal if we achieve in time real, local and seasonal food.

On the other hand, the importance of reducing the use of screens is explained, as well as the importance of working on sleep hygiene.

During the whole process, follow-up is done via e-mail to support and solve doubts regarding the goals we



were defining week by week. The patient reported his progress in a methodical and disciplined way, understanding that this is the way to obtain long-term results.

He resumes physical activity and gradually increases time and intensity (daily jogging and juyitsu practice), increases consumption of whole grains and legumes, fresh seasonal vegetables and fruits and hydration with filtered water. Slowly moving away from processed foods and fast food delivery. She integrates intermittent fasting into her habits, eating her last meal at 7 pm and breaking her fast between 10 and 11 am the next day. She designates times of the day to rest from the screens and go for a walk in the park in the afternoons.

A control was performed at 5 months, in which we observed significant changes in laboratory parameters,

in addition to highlighting the evident change in the patient's attitude during the consultation. He reported feeling happier and more energetic during the day. (See table 1)

It is important to note that in addition to the changes explained above, it was necessary to supplement with vitamin D (2000 IU / day in drops) associated with sunbathing for 15 to 20 minutes daily, and supplementation with vitamin B12 (2000 mcg / week in sublingual presentation).

The patient refers that his motivation to make the change starts from the fear of getting sick more seriously but then when he feels better and sees changes at a physical and emotional level, his motivation becomes his own results and wants to feel good about himself.

**Table 1.** Evolution and changes in blood values by dates.

Exs.	14/10/2020	06/03/2021	10/06/2021
Cholesterol total	225 mg/dl	192 ml/dl	180 mg/dl
LDL	135.6	130	105 mg/dl
HDL	39.9 mg/dl	41.0	48 mg/dl
Tryglicerides	234 mg/dl	105	107 mg/dl
Glicemia in fast	106 mg/dl	84 mg/dl	85 mg/dl
Insuline in fast	22 uU/mol	10.24 uU/mol	8 uU / mol
HOMA	5.5	2.12	
25 OH Calciferol	12.9 ng/mL	32.5 ng/ml	35 ng/ml
Vitamina B12	280 pg/mL	720 pg/ml	740 ng/ml
Homocysteine	-	11.99 umol/ml	-

## DISCUSSION

In countries with a high level of economic development, cardiovascular diseases (CVD) occupy the first place, being called by some authors the epidemic of the century. Among the factors that predispose to the emergence of these diseases are arterial hypertension, dyslipidemia, obesity and metabolic diseases such as diabetes mellitus<sup>(1,2)</sup>.

Medical practice has been oriented for many years to cure diseases, which has been slowly changing.

Nowadays, actions aimed at promoting health have become increasingly important in the field of medicine. For all these reasons, the analysis of lifestyles is of growing interest. The set of patterns and habits of people's daily behaviors have an important effect on their health<sup>(7,9)</sup>.

## CONCLUSIONS

A case of a 37-year-old male patient who was overweight, sedentary, exposed to high levels of occupational and social stress, recently diagnosed with



essential hypertension (following hypertensive crisis), insulin resistance and mixed dyslipidemia was reported. The patient was followed up and monitored for 8 months and significant improvement was observed in laboratory parameters and in mood and attitude.

The importance and necessity of adopting health promotion and prevention interventions that differ from the traditional pharmacological and curative ones was evidenced.

Lifestyle changes have shown effectiveness in the treatment and reversal of different conditions, in this

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**Correspondence:** Centro de Salud y Medicina Humana CASA VIVE  
**Address:** Castellón 176 - 2, Concepción, Santiago fe Chile.  
**Telephone number:** +569 45813093  
**E-mail:** Hola@casavive.cl

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case, such as arterial hypertension, fasting glycemia and insulin indices, total and LDL cholesterol.

The experience with this particular patient allowed us to verify that in order to obtain results it is necessary not only to prescribe and give indications and/or guidelines, but the whole previous process of education about risk factors and exposure to the problem brought by NCDs, explain each of the proposals after an objective analysis as a whole of the personal situation, and finally the adoption and practice of concrete procedures that guarantee the achievement of the defined behavioral and habit objectives.

**Conflicts of Interest:** No conflicts of interest are declared.

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