

SHORT REVIEW

Health promotion or pharmacological treatment for chronic diseases?

M.F. ALLAM, M.A. ORTIZ ARJONA
South Cordoba Health District, Spain

Key words

COPD • DM • Hypertension • Obesity • Smoking • Non-communicable diseases

Summary

Over the last years medicine has progressed very rapidly. Communicable diseases, which were the leading causes of mortalities, are not anymore, especially in developed countries. Currently, non-communicable diseases are more prevalent, and most of them are related to changes in our daily habits and degenerative processes. Most of these diseases are chronic, need continuous care and treatment with limited improvement and high costs. The General Assembly of the United Nations in its resolution 65/238 recognized the primary role and respon-

sibility of Governments in responding to the challenge of non-communicable diseases and the essential need for the efforts and engagement of all sectors of society to generate an effective response. Special emphasis has been concentrated on pharmacological treatments for most of chronic non-communicable diseases with the challenge to discover new drugs for treating, in most cases, chronic irreversible degenerative diseases associated with aging. Little care was given to non-pharmacological lines of treatment.

Introduction

Over the last years medicine has progressed very rapidly. Communicable diseases, which were the leading causes of mortalities, are not anymore, especially in developed countries. Currently, non-communicable diseases are more prevalent, and most of them are related to changes in our daily habits and degenerative processes. Most of these diseases are chronic, need continuous care and treatment with limited improvement and high costs [1-3].

The General Assembly of the United Nations in its resolution 65/238 recognized the primary role and responsibility of Governments in responding to the challenge of non-communicable diseases and the essential need for the efforts and engagement of all sectors of society to generate an effective response [2].

Special emphasis has been concentrated on pharmacological treatments for most of chronic non-communicable diseases with the challenge to discover new drugs for treating, in most cases, chronic irreversible degenerative diseases associated with aging. Little care was given to non-pharmacological lines of treatment [3].

Arterial hypertension

Worldwide hypertension is the most frequent chronic disease among aged population. It is estimated that 35% of the general population over 40 years old suffer idiopathic arterial hypertension and need treatment for life [4, 5]. Over the last years pharmacological treatment has revolutionized rapidly. Angiotensin-

converting-enzyme inhibitors (ACEIs) have replaced beta-blockers in many cases. The current scientific debate is about indications, effectiveness, safety and cost-effectiveness of angiotensin receptor blocker (ARB) and ACEI. Recently ARB is taking its place between known antihypertensive drugs especially in patients with other chronic diseases like renal insufficiency [6, 7]. Non-pharmacological measures for treatment of hypertension are well-known and include diet control with low salt diet and cholesterol diet, tobacco cessation, weight control and physical exercises [8-11]. It is estimated that 30% of hypertensive patients can control their blood pressure following non-pharmacological measures without the need for any antihypertensive drugs. Little attention is given to these basic non-pharmacological measures [12].

Diabetes mellitus

Over the last 30 years the number of Diabetes Mellitus (DM) patients and its prevalence are rapidly rising [13]. Ginter and Simko (2010) reported that in the second half of the 20th century it became obvious that a relentless increase in DM type 2 affecting the economically affluent countries is gradually afflicting also the developing world [14]. Oral antidiabetic drugs are various and are very effective in DM type 2. However, all these drugs have several side effects, which are usually related to other underlying pathologies in the same patient [15]. DM type I is treated with insulin, which has been revolutionized over the last 10 years, with various forms of insulin and modes of administration [14, 16].

Non-pharmacological measures for control of blood glucose in diabetics, like diet and weight controls and regular physical exercise are hardly adopted by these patients [13, 16, 17].

Obesity

Obesity is the new epidemic of the 21st Century. It is estimated that in Western Countries > 40% of the general population are over weight. The raising incidence and prevalence of this morbidity is alarming. Junk food, high carbohydrate and fat diet and lack of physical exercise are the main risk factors for this epidemic [13].

Of no doubt diet control and physical exercise could resolve this health problem [18]. Over the last years, several drugs were used to control weight, like Thyroxin and Metformine and new drugs like Litramine. Most of studies have shown that these drugs are not completely safe and could produce several side effects. Complications related to the use of these drugs are reported [13]. Other measures to treat obesity include surgical intervention like stomach reduction, liposuction and intestinal anastomosis. Recent debates discuss severe complications and mortalities related to these surgical operations [19].

Chronic obstructive pulmonary diseases

Smoking is the epidemic of the 20th Century. After 1950s tobacco smoking prevalence reached 45% of the general population in many western Countries [20]. Currently chronic obstructive pulmonary diseases (COPD) is the second cause of mortalities in most Western Countries. Most of COPD patients are ex-smokers or even current smokers [21]. Treatment of COPD has been revolutionized over the last few years. Treatment measures include bronchodilators with sympathomimetics and antiparasympathomimetics, together with corticosteroids in the form of oral, injection and inhalation therapy. Side effects related to corticosteroids use like iatrogenic hypertension, and iatrogenic DM are well known [22]. Tiotropium is one of the specific treatments to delay the

progress of the disease and to improve the pulmonary functions. Recent meta-analysis reported a 52% increased risk of mortality associated with tiotropium mist inhaler in patients with COPD [23]. Although weight reduction, physical exercise and pulmonary exercise in specific have been proved to be effective and improve pulmonary function tests by 30-40%, the use of pharmacological treatment in COPD is by far more numerous than non-pharmacological measures [22].

Discussion and conclusions

In 2010, the Spanish National Health Service (NHS) paid for 958 million prescriptions. Most of these prescriptions were realized at primary healthcare. According to the Spanish NHS, areas requiring improvement in primary care prescription include over-treatment of patients in low risk situations, poor patient information, polymedication and the appreciable percentage of preventable adverse effects [24].

Over the past few decades, developed countries have achieved remarkable improvements in terms of their life expectancy, with growing number of third age population. Most older patients do have several concomitant chronic conditions and receive treatment mainly at primary healthcare by General Practitioners/Family Physicians. Multiple co-morbidities of older patients are usually associated with increased use of health care resources, multiple health care providers, polymedication and an overall increased risk of adverse events [25].

A recent retrospective observational study performed in Croatia from March 2005 to December 2008, showed that polymedication led to serious adverse drug reactions and deaths. This study reported 2076 adverse drug reactions, 1209 of which (58.2%) involved more than one drug [26].

In conclusion, we currently look for pharmacological and surgical measures to treat most of chronic non-infectious diseases, as rapid and easy measures ignoring their side effects and costs, rather than adopting healthy habits and non-pharmacological measures.

References

- [1] Mathers CD, Boerma T, Ma Fat D. *Global and regional causes of death*. Br Med Bull 2009;92:7-32.
- [2] High-level Meeting on Non-communicable Diseases. General Assembly of the United Nations. <http://www.un.org/en/ga/president/65/issues/ncdiseases.shtml> (5 February 2012).
- [3] Alwan A, Maclean DR, Riley LM, et al. *Monitoring and surveillance of chronic non-communicable diseases: progress and capacity in high-burden countries*. Lancet 2010;376:1861-8.
- [4] Egan BM, Zhao Y, Axon RN. *US trends in prevalence, awareness, treatment, and control of hypertension, 1988-2008*. JAMA 2010;303:2043-50.
- [5] Germino FW. *The management and treatment of hypertension*. Clin Cornerstone 2009;9(Suppl 3):S27-33.
- [6] Heran BS, Wong MM, Heran IK, et al. *Blood pressure lowering efficacy of angiotensin converting enzyme (ACE) inhibitors for primary hypertension*. Cochrane Database Syst Rev 2008;(4):CD003823.
- [7] Wright JM, Musini VM. *First-line drugs for hypertension*. Cochrane Database Syst Rev 2009;(3):CD001841.
- [8] Gee ME, Bienek A, Campbell NR, et al. *Prevalence of, and barriers to, preventive lifestyle behaviors in hypertension (from a National Survey of Canadians with hypertension)*. Am J Cardiol 2012;109:570-5.
- [9] Fagard RH. *Exercise therapy in hypertensive cardiovascular disease*. Prog Cardiovasc Dis 2011;53:404-11.
- [10] McGrane MM, Essery E, Obbagy J, et al. *Dairy consumption, blood pressure, and risk of hypertension: an evidence-based review of recent literature*. Curr Cardiovasc Risk Rep 2011;5:287-98.
- [11] Jürgens G, Graudal NA. *Effects of low sodium diet versus high sodium diet on blood pressure, renin, aldosterone, catechol-*

- mines, cholesterol, and triglyceride. *Cochrane Database Syst Rev* 2004;(1):CD004022.
- [12] Khan NA, Hemmelgarn B, Herman RJ, et al. *The 2008 Canadian Hypertension Education Program recommendations for the management of hypertension: part 2 - therapy*. *Can J Cardiol* 2008;24:465-75.
- [13] Norris SL, Zhang X, Avenell A, et al. *Long-term non-pharmacological weight loss interventions for adults with prediabetes*. *Cochrane Database Syst Rev* 2005;(2):CD005270.
- [14] Ginter E, Simko V. *Diabetes type 2 pandemic in 21st century*. *Bratisl Lek Listy* 2010;111:134-7.
- [15] Juurlink DN, Gomes T, Lipscombe LL, et al. *Adverse cardiovascular events during treatment with pioglitazone and rosiglitazone: population based cohort study*. *BMJ* 2009;339:b2942.
- [16] Hahr AJ, Molitch ME. *Optimizing insulin therapy in patients with type 1 and type 2 diabetes mellitus: optimal dosing and timing in the outpatient setting*. *Dis Mon* 2010;56:148-62.
- [17] Nield L, Summerbell CD, Hooper L, et al. *Dietary advice for the prevention of type 2 diabetes mellitus in adults*. *Cochrane Database Syst Rev* 2008;(3):CD005102.
- [18] Dubnov-Raz G, Berry EM. *The dietary treatment of obesity*. *Med Clin North Am* 2011;95:939-52.
- [19] Tavares A, Viveiros F, Cidade C, et al. *Bariatric surgery: epidemic of the XXI Century [Article in Portuguese]*. *Acta Med Port* 2011;24:111-116.
- [20] World Health Organization. *WHO Report on the Global Tobacco Epidemic, 2009. Implementing smoke-free environments*. http://www.who.int/tobacco/mpower/2009/gtcr_download/en/index.html (25 June 2011).
- [21] European Lung Foundation. <http://www.european-lung-foundation.org/> (25 June 2011).
- [22] Abdool-Gaffar MS, Ambaram A, Ainslie GM, et al. *Guideline for the management of chronic obstructive pulmonary disease - 2011 update*. *S Afr Med J* 2011;101(1 Pt 2):63-73.
- [23] Singh S, Loke YK, Enright PL, et al. *Mortality associated with tiotropium mist inhaler in patients with chronic obstructive pulmonary disease: systematic review and meta-analysis of randomised controlled trials*. *BMJ* 2011;342:d3215.
- [24] Sanf elix-Gimeno G, Peir  S, Meneu R. *Pharmaceutical prescription in primary care. SESPAS report 2012 [Article in Spanish]*. *Gac Sanit* 2012;26(Suppl 1):41-5.
- [25] Vogt-Ferrier N. *Older patients, multiple comorbidities, poly-medication ... should we treat everything?* *Eur Ger Med* 2011;2:48-51.
- [26] Mirosevic Skvrce N, Macolic Sarinic V, Mucalo I, et al. *Adverse drug reactions caused by drug-drug interactions reported to Croatian Agency for Medicinal Products and Medical Devices: a retrospective observational study*. *Croat Med J* 2011;52:604-14.

■ Received on October 25, 2012. Accepted on December 6, 2012.

■ Correspondence: Mohamed Farouk Allam, Responsible for Epidemiology, Research and Health Programs. South Cordoba Health District. Ctra. C rdoba - M laga, Km 69. 14900 Lucena - Cordoba (Spain) - Tel. +34 957 596364 - Fax +34 957 596352 -E-mail: fm2faahm@uco.es