

Health Profiles – Brazil 2006 – Changes and their Causes

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For centuries medicine progressed very slowly¹, and in the past fifty years its development has been “blindingly fast” and difficult to keep up with, and made the means of communication, especially IT, indispensable. At each step of this progression the health profile faced by medicine went through changes thus changing the medical reasoning.

We could say that Health Profiles are changes in the main focus of the medical care as a consequence of the evolution of our civilization and of medicine itself.

Evidences

Throughout all those years of medical evolution, the Health Profile consequently went through changes and physicians had to keep up, adapt and change their attitudes and decisions.

The purpose of this article is to attempt to show in an instructive and comprehensible manner how some events that modified the Health Profiles unfolded, and which were their repercussions on chronic degenerative diseases (CDD), and especially on cardiovascular diseases (CVD).

Health profiles: changes and their causes

Some of the changes that influenced the main focus of medical care were:

- Epidemiological changes occurred when CVD, among the CDD, became the major cause of death as of the second half of the 20th century, with deep changes in medical behavior, therapies, and public health and their population-targeted programs.

- Changes of stage of demographic transition: The Brazilian population is now comprised of more adult and elderly individuals because of the decrease in mortality and birth rates. This led to percentage changes of age ranges with a significant increase of elderly individuals.

- The great structural changes in the world that modified a whole habitation and population structure that occurred between the end of the 19th century and beginning of the 20th century, with industrialization and subsequent movement of the rural population into the cities.

- Changes with time evolution of medicine: We have an

Key words

Health profile; neurodegenerative diseases; cardiovascular diseases.

initial phase that lasted several centuries and could be called Medicine Based on Observation and Experience, and the current one which began in mid-20th century: the Medicine Based on Evidence. Medicine which was curative until then and treated CVD complications became more preventive.

- Changes with the valuation of RF in CVD: With the valuation of RF in CVD emerges the Primary Prevention for CDD, especially for CVD. This was only possible thanks to principles that arose with the Medicine Based on Evidence. With them, RF for CVD were evidenced. And what was unthinkable until then: a whole range of possibilities to make primary prevention arose.

Epidemiological changes

Contagious diseases predominated until 1950, accounting for 40% of deaths. As of 1990, CDD started to predominate, and among them CVD with 34.5% of deaths, whereas contagious diseases dropped to 12%²⁻⁴. Notions of hygiene and knowledge on transmitters and etiologic agents of contagious diseases led to a reduction of these diseases, thus reducing mortality of younger individuals. This occurred earlier in the currently called developed countries. A consequence of this fact was that populations are now comprised of older people, and CDD started to predominate, with CVD being the special focus of medicine.

Change of stage of demographic transition

The change of stage of demographic transition, when Brazil advanced to the fourth stage, with the decrease in fertility and mortality, led to changes of the percentages of different age ranges and increase in the percentage of elderly individuals⁵.

According to the WHO's estimates⁶, Brazil will have 32 million elderly individuals, the sixth country in the world in terms of elderly individuals, between 2020 and 2025. Adults, older adults and elderly individuals now account for very high percentages, and began to have the same population weight, with its consequences, which is something that the European countries already felt, and for what they have prepared themselves for longer. In 1950, Brazil was considered a country of young people. In the year 2000, in the State of Rio Grande do Sul (RS), our elderly (≥ 60 year) accounted for 17% of the adult population⁷ above 20 years. We should prepare for that. Our elderly population was growing just like in the developed countries, but in the last few years the growth was two-fold higher in developing countries in comparison with developed countries.

Another factor that will increase the elderly population is the increase of life expectancy for Brazil, which was already of 67 years in 1994, according to the Ministry of Health.

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However, in RS, according to the Coordination of Information of the State Health Office of RS, for those who were born between 1998 and 2000, the mean age expected is 71.79 years. This increase in life expectancy should occur all over Brazil, resulting in important changes in the composition and percentages of the different age ranges.

This population change brings significant consequences:

- a proportional increase of an age range with more comorbidities;
- a proportional increase of an age range with more emotional, relationship and quality-of-life issues;
- a proportional increase of an age range with more economic and financial problems, and more concern about these problems;
- difficulties in the administration of medications and more collateral effects;
- an age range of individuals who can only be treated by interdisciplinary groups.

The great structural changes in the world

These changes have occurred with great intensity in the late 19th century and early 20th century (Table 1).

1. Social structures
2. Economic structures
3. Political structures
4. Educational structures
5. Family structures
6. Demographic/population transition: rural and urban
7. Industrial structures
8. Income level
9. Economic patterns
10. Educational level
11. Nutritional habits
12. Physical activity

As we can observe in Chart 1, these structural changes were very significant and influenced all human activities. The great hygienic measures emerged, the quality of life started to improve, cities grew, and the rural population started to move into the cities. According to the IBGE (*Instituto Brasileiro de Geografia e Estatística* – Brazilian Institute of Geography and Statistics), 81.4% of the Brazilian population was urban in 2000. Within these structural changes, we should consider this exodus of the rural population in Brazil, as occurred worldwide, leading to a great increase in the population of the large cities and with a high percentage of marginalization.

Of course these huge changes influenced medical attitudes and their main focuses profoundly. The health profile was starting to change radically with occupational medicine, city

medicine, occupational diseases, unionism, socialization, new equipment, valuation of laboratory tests, etc. Again, these changes reached the countries currently called developed earlier. All these changes and medical knowledge, as a consequence of the basic structural changes, took longer to be put in practice in Brazil. And this was one of the causes of the delayed medical development in almost all developing countries and even more in the underdeveloped countries.

Changes with time evolution of medicine

The first reference to the medical work is found in the mortuary chamber of the Egyptian Was Ptah, and only in the 30th century BC Hippocrates (460 BC) introduces the observation of symptoms as a means to make a diagnosis; Paracelsus, Vesalius, Malpighi, Laenec date back to 1493 to 1781; the great medical discoveries, discoveries of basic and more scientific instruments, equipment and thoughts date back to the 19th and 20th centuries¹. The purpose of these quick references is to show how slowly medicine developed. It was a long period which can be called **Medicine Based on Observation and on Experience**.

Perhaps we could mark the year 1950, with Framingham's studies and the double-blind randomized trials, as the beginning of a modern age which was now called Medicine Based on Evidence.

With this landmark, scientific studies called the Great Studies started to come up. The basis of what will be called Medicine Based on Evidences (MBE) is then formed. Knowledge over these past 50 years has been huge and with significant changes on the basis of Medicine, making many concepts which were considered definitive be revised and updated on more current bases in light of the conclusions of some Great Studies.

With the increase in the incidence of CDD, and especially CVD, they now account for 17 million deaths per year worldwide. Developed countries such as those in America, Europe and Asia are the major responsible for these figures. An epidemic of CVD is expected for the coming years if the current progression of these diseases fails to be changed.

MBE has provided data able to modify the evolution of CVD. It gives rise to the valuation of Risk Factors (RF) for CVD, and with it comes the Primary Prevention for CDD: the CVD. Until then this measure was unthinkable. This brought a significant change in the Health Profile and a subsequent new therapeutic view. It is the emergence of the valuation of RF and their application on primary prevention, initially on CVD, but which will very likely be used on all CDD.

Changes with the valuation of RF in CVD

Age

The valuation of RF, especially for CVD, was a gain of the utmost importance. What was unthinkable until then – the primary prevention – was now put in practice with favorable results being accumulated.

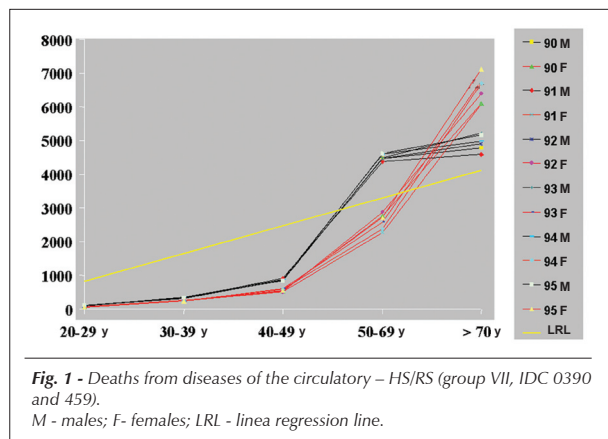
With the significant increase in the percentage of elderly individuals in the general population, perhaps is age the RF

Point of View

with the highest weight in the incidence of CVD. Primary and secondary prevention, in association with the fight against other RF, shall be applied mainly to older ages. Elderly individuals generally present with three or more associated RF, not to mention the high incidence of comorbidities.

Gender

Male gender was defined as having higher risk for CVD. Females, like in many areas of the human activity, and also in CVD, only started to be more carefully studied not more than 20 years ago, when they began to take part on the samples of the great studies and in local studies^{8,9} (Figure 1).



The graph above shows that it is as of 55 years of age, in CVD, that women start to present higher prevalence of complications of CVD than men. The graph is based on data from the State Health Office – RS on CVD deaths between 1990 and 1995.

Social inequalities

Social inequalities affect a significant portion of the population which is more vulnerable to CVD because of a higher prevalence of some RF¹⁰: except for diabetes mellitus and hypercholesterolemia, all other RF assessed are significantly more prevalent in individuals classified as “vulnerable”; in general, these patients have more than two associated RF. In this study the group considered vulnerable was that of individuals earning less than three minimum wages per family and with up to eight years of schooling.

Poverty affects 4.4 million people worldwide; 3/5 lack access to sanitation, 1/3 do not have clean water, 1/5 lack access to health care¹¹. This has delayed the most primary corrective measures in medicine, namely sanitation.

These are elements that the current medicine will have to take into account with much attention, because they involve other not exactly medical issues: social and financial issues.

Diabetes mellitus

The importance of Diabetes Mellitus in CVD is well defined: it is a RF that currently represents an established prognosis, where the possibilities of a cardiac event are similar to those of heart disease patients who already had a cardiac event. It is associated, in statistically valid percentages, with obesity, sedentary lifestyle, HBP and dyslipidemia¹²⁻¹⁴. The importance of DM increased so much that DM patients have the same risk of a cardiac event as that of ischemic heart disease patients.

High blood pressure

HBP has an unquestionable value as a RF in CVD, and is perhaps the most frequently studied disease in the past few years. It is associated with obesity, elderly individuals, low level of education, and populations with low socioeconomic levels^{3,7,8,15-19}, and the VII JOINT’s guidelines²⁰ established new parameters of pressure levels. The focus on HBP is key in population-targeted health programs.

Smoking and sedentary lifestyle

Are already well-defined RF in CVD and should be part of any primary and/or secondary prevention planning.

Conclusions

In an attempt to summarize what was written, and to seek to learn from it, we could say that Health Profiles in CVD have modified from the following changes:

Epidemiological changes: predominance of CDD, especially CVD.

Changes of stage of demographic transition: a significant increase of elderly individuals.

Great structural changes in the world: industrialization, basic hygiene, urban population.

Changes with time evolution of medicine: the Medicine Based on Evidences.

Changes with the valuation of RF in CVD: CVD prevention.

It is important for physicians to have this view so that they can understand the difficulties they currently face. The changes were significant and occurred in a short period of time. The treatment focus has changed, the therapeutic armamentarium has changed, the doctor-patient relationship has changed. Perhaps the youngest physicians, who have already found these transitions, are not able to realize how much the Health Profile has changed, and the oldest, despite knowing its evolution, find it difficult to accept all the changes because of the huge information box which almost daily offers a more modern view of medicine.

Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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