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PHARMACOTHERAPEUTIC PROFILE OF PATIENTS FROM HYPERTENSIVE AND DIABETICS PROGRAM FROM SANTO ÂNGELO/RS

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ABSTRACT

The reduction in fecundity and mortality rates, combined to increase the life expectancy of the population brought benefits, however there was increase occurrence of chronic non-communicable diseases such as High Blood Presssure and Diabetes Mellitus, consequently there was also an increased consumption of drugs. The study has descriptive retrospective analytical character, where were traced the pharmacotherapeutics profiles of hypertensives and diabetics patients attended by Family Health Strategy (FHS's) programs of the Santo Ângelo-RS city. Of the 117 patients analyzed, occurred prevalence the elderlys and women and most of them (46,1%) made use of polypharmacy. The Patients even in use of polypharmacy still had uncontrolled blood glucose, where significant increases were found with an average of 122 ± 54 mg/dl between them. In relation to anthropometric variables CA and IMC present themselves high may be the cause of uncontrolled blood glucose levels that was found in these patients. The quality of life scores were low and the patients who used the polypharmacy possessed lower scores and hence, lower quality of life compared to other patients. It realizes an extensive use of drugs, with a high prevalence of polypharmacy in elderly with concomitant chronic diseases, influencing negatively the quality of life of these patients.

KEYWORDS: Presssure, Pharmacotherapeutics, hypertensives.

INTRODUCTION

The reduction in fecundity and mortality rates, added with increase of population life expectancy brought benefits like more longevity, however there was an increase in occurrence of chronic diseases (Pimenta et al, 2015). The demographic and epidemiological transition has been reflected in the population life expectancy, as well as, in their inadequate lifestyle, resulting in health problems, like chronic diseases noncommunicable, Arterial Hypertension (AH) e Diabetes Mellitus (DM). This fact implies in burden for the public health, and consequently in the people quality of life (Silveira, 2014; Ribeiro, 2010).

The Arterial Hypertension (AH) is one of the largest health problems prevalence from all over the world. About 600 millions people in the world are affected by this pathology, and in Brazil, it reaches about 65% the elderly people (Reinhardt et al, 2012). It is estimated that 4% of children and teenagers are also carriers this disease, and in the next years these numbers will increase (Silva et al, 2014). This tendency occurs due to inadequate lifestyle of the population, as the lack of a healthy diet, lack of physical exercises, among others (Moura; Nogueira, 2013). The Diabetes Mellitus (DM) also has high prevalence and many chronics complications. Affects mainly elderly, characteristic from DM type 2, can occur in young people, in case from DM type 1. According to World Health Organization (WHO) was estimated that since 2010, 285 millions people in the world would have diabetes, which 90% type 2. This incidence will increase until 2030 may add 439 millions (Xie, 2015).

The DM is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, by insulin action, or both. The chronic hyperglycemia is associated with long-term damage, dysfunction and multiple organs failure like eyes, kidneys, nerves, hearth and blood vessels (American Diabetes Association, 2013). But the AH is a multifactorial clinical condition characterized by higher pressure levels, more than 140mmHg systolic arterial pressure (SAP) and 90mmHg diastolic arterial pressure (DAP) (Sociedade Brasileira de Hipertensão - Diretriz

Europeias para Tratamento da Hipertensão Arterial, 2013/2014).

The DM2 double the risk for cardiovascular diseases, being that the half of patients suffer with this pathology, are also hypertensive and so is common hypertensive to find patients who use anti-depressants and antidiabetic drugs at the same time (Singh et al, 2014). Between people with HAS e DM diagnostic, most of them will need therapy with more than one class of drugs, characterizing occurrence of multidrug. This is determined with use more than 5 drugs simultaneously, used for more than 3 months, happening in largest number in older people (Galato, Silva, Tiburcio, 2010). According to Brazilians studies, showing a prevalence between 5 and 27% in these population (Silveira, 2014), being the older population who more consume drugs (Santos, 2012).

The multidrug use can cause drug interactions. According to Rozenfeld (2003), mentioned by (2012, p. 309), " most of seniors citizens used, at least, one drug, and one-third them used five or more simultaneously, facilitating the appearance of interactions between these drugs."

Can be observed a large use of drugs between hypertensives and diabetics, or the both conditions together with use of redundant drugs and/or unfit, that suggests continuous updating of choice for drugs used in the therapy (Gontijo et al, 2012). The multidrug needs more knowledge between the drugs types and about the interactions that might occur between themselves. The drug interactions incidence is estimated between 3 to 5% in patients who used several drug, and increase 20% in patients who making use 10 to 20 drug, showing the importance about the subject area (Amaral; Perassolo, 2012).

The use of drugs is important to control these diseases and prevention of your complications. For this reason, in Brazil the demand of drugs increase according to growth the chronic illnesses prevalence. The drug intervenes in behavior and social causes of the disease that needs changing habits and behaviors for your better effectiveness (Pereira et al, 2012).

The seniors by being more vulnerable to chronic diseases development just as well as meeting in age-group who more used drugs, needing care in relation to use pharmacological therapy, the occurs toxic effects and serious adverses. All that has been making that the studies about this subject increase in Brazil. This way, it is important that more studies being development by the concern with the health conditions these patients as the public policies direction turning to this situation. Therefore, the purpose of this study was assess the pharmacotherapeutic profile of patients from hypertensive and diabetics program in FHS's from Santo Ângelo/RS city.

MATERIALS AND METHODS

The research characterized as an analytical descriptive retrospective study, where were monitored the biochemical glucose doses, the pressure levels, and the Body Mass Index calculation (BMI) in diabetic patients type II and/or hypertensives from Family Health Strategy (FHS) from Santo Ângelo/RS city. Also were evaluated the quality of life, with the questionnaire SF 36 Brazilian Version and the eating habits these patients. For drug therapy evaluation was made medical prescription analyses and the drug interaction through database *online* Drugs.

Were evaluated 171 diabetic patients type II and/or hypertensive, being including who agree in to participate, signing the informed consent form, and that contained total assessment. And excluded 54 patients who having incomplete assessment, and not showing the medical prescription for medications evaluation, numbering 117 patients.

The multidrug presence was considered when the patient made use five or more drugs, concomitantly, characterizing the larger multidrug. The datas were handled in Microsoft Excel 2007 and BioEstat 5.0 programs. For descriptive analysis was used the average ± standard deviation and for the mathematical-statistic analysis, was used the chisquare associations test, when appropriate, to search associations between pressure and blood glucose levels and the treatment with drugs, just as well had or not relation with multidrug. The datas were classified in gender, multidrug use or not, comparing the populations, and checking significant relations ($p<0,05$).

RESULTS AND DISCUSSION

The Laboratório Escola de Análises Clínicas (LAC) from Instituto Cenecista de Ensino Superior de Santo Ângelo (IESA) to render services for Santo Ângelo community across extension projects. In one of them, patients carriers DM and/or HA are periodically monitored thru biochemistry analyses from lipid and glycemic, together with the AP check and anthropometric variables.

Between November 2014 and July 2015, were attended 171 patients, separated in two groups, being these, 117 patients were evaluated in this study. Which patients, 86 (73,5%) are female and 31 (26,5%) are male, having the middle age 61,8 ± 11,2 (Table1).

Considering that almost all the patients need drug therapy, and used some drugs, evaluated the medical prescription with the patients prescriptions and showed that most of them used multidrug (5 drugs or more) corresponding the 46,1% about the sample studied (Table 2), these patients 43 were women and 11 were men, and had the middle age 62,8 ± 10 years-old (Table 1). These results achieved in the research support with a study realized by Carvalho and employees (2012), where 36% from population studied used multidrug.

Moreover, showed that the patients used, on average, 6 drugs. Vieira and employees (2014) found in a population of 32 patients on an average about 8,0±2,3 drugs, this is consider a rise multidrug. Another study realized by Medeiros et al. (2009) with 450 patients showed that the patients used of 1 to 8 drugs, with on average of 4,5 drugs in an elderly population.

Table 1- The data stratification about use or not multidrug and as the genders.

	AGE (YEARS)	NUMBER OF DRUGS	PAS (mmHg)	PAD (mmHg)	GLUCOSE (mg/dL)	IMC (Kg/m²)	CA (cm)	TOTAL OF PATIENTS
TOTAL SAMPLE	61,8 ± 11,2	4,3 ± 2,1	143 ± 21,2	90,2 ± 16,8	107 ± 41	31 ± 6	101,9 ± 12,4	117 (100%)
MULTIDRUG	62,8 ± 10	6,1 ± 1,3	*149,5 ± 20	90 ± 13,3	*122 ± 54	31,5 ± 6,4	104 ± 13	54 (46,1%)
Female	61 ± 9	6,1 ± 1,3	148 ± 19	94 ± 13	*113 ± 43	32,1 ± 6,6	*103,5 ± 13,6	43
Male	68,4 ± 12,7	6,2 ± 1,3	153 ± 23,5	87,5 ± 14	*159 ± 77	29,7 ± 5,6	106,4 ± 13	11
WITHOUT MULTIDRUG	61 ± 12	2,6 ± 1,2	*139 ± 21,2	88 ± 19	*94,7 ± 16,6	30,2 ± 5,8	100 ± 11	63 (53,8%)
Female	61 ± 13	2,7 ± 1,2	138 ± 21	86 ± 20	*92 ± 15	31,4 ± 5,6	*100 ± 10	43
Male	61 ± 11	2,5 ± 1,3	140,5 ± 22	92,6 ± 16	*100 ± 19	27,3 ± 5,4	100 ± 14	21

*Variable with significance p<0,05.

Table 2- Description and percentage of sample in relation to number of drugs that are use by patients assisted.

	USE < THAN 3 DRUGS	USE ≥ THAT 3 DRUGS (LOWER MULTIDRUG)	USE ≥ THAT 5 DRUGS (HIGHER MULTIDRUG)	TOTAL
NUMBER OF PATIENTS	26 (22%)	37 (31,9%)	54 (46,1%)	117(100%)

Another study realized by Baldoni and employees (2013), with 1000 elderly people cared in a Basic Unit District Health (BUDH) showed 47,9% used more than 7 drugs. With regard to multidrug, the most were women and had age greater than 75 years-old, factors as self-medication, several health problems, number of doctor visits, use of drug without medical prescription, psychotropic use, sedentariness and sweetener use were related with the practical. This way, comparing these datas with the population valued to show a large similarity with the multidrug high prevalency.

According to the gender, was found a greatest percentage of women, being the sample compiled in the vast majority, by elderly people, with the middle age 61,8 years-old. The predominance the female patients regarding the male patients was found in others studies, such as the realized by Pereira and employees (2012), that associated this prevalency from the fact that the women looking for more health service than men.

Usually the factors that take multidrug application were, according to Silveira, Dalastra and Pagotto (2014) to belong to female gender pertencer, have the same or more than 80 years-old, to show regular self-assessment about heath and chronic diseases. In this research also been found prevalency of female using multidrug, but with approximately 61 years-old. It is important to consider that in the patients evaluated the chronic diseases showing greater important and association for mutidrug development.

Even in the medical prescriptions from patients that using multidrug, it was noted the prevalency of some drugs, like as the diuretic Hydrochlorothiazide, existent in 28 patients prescriptions, Captopril and Enalapril, both actives as ECA inhibitors, existents in 21 prescriptions and 19 patients, respectively (Table 3). Among the hypoglycemic the Metformin is the most used by patients, from biguanides category, used by 31 patients. Results that corroborate with this study also were described by et al. (2011), Gontijo et al. (2012) and Qaseem et al. (2012) where identified an increased use of IECA and metformin among diabetics and hypertensive patients evaluated.

Table 3- Drugs more used by patients in multidrug.

Drugs more used	Number of patients who used
Hydrochlorothiazide	28
Captopril	21
Enalapril	19
Metformin	31

Others studies like as Linarelli et al., (2009) and Varonez and Simões (2008) also find the captopril and hydrochlorothiazide with the more used drugs. Although the antidiabetic more used, according to the Amaral and Perassolo (2012) study were the glibenclamide (70%) and metformin (40%), different from our study that shows the metformin with more used antidiabetic.

The large consumption these drugs can be associated with low price and easy access for population, because are part of Relação Nacional de Medicamentos Essenciais (RENAME) being these distributed in a public system and in popular drugstores (Medeiros et al, 2009).

Such as noticed the use of a larger number of drugs simultaneously from patients, could understand the incidence of some drug interactions (DI), which very often, can be associated with not control the pressure and/or glycemic levels, because the use of more than one drug can inhibit another drug, making with which not working your action in the body, affecting negatively the patients treatment. Confronting anti - hypertensives with hypoglycemics, were found 91 interactions, which Hydrochlorothiazide/Metformin, Captopril/Metformin and Enalapril/Metformin were more prevalent (Table 4).

A study realized by Amaral and Perassolo (2012) involving 45 patients participants from HiperDia program, were identified 144 possible drugs interactions, a number greater than if compared to found in our study. The association from hypoglycemics with diuretics was found in majority prescriptions of patients (17 patients). The result this IM is that the hypoglycemics effect can be reduced by thiazide diuretic and handle (Korolkovas, 2009; Baxter, 2010).

It was possible to notice that the patients which use multidrug are with AP values checked, it can explain for the long anti-hypertensive use in these population, and also, must take notice a high standard deviation find between the patients in this variable, showing that many can be with the values more altered/elevated and others with AP values normal. However the patients with multidrug have AP systolic values more elevated if compared to who not use polytherapy ($p<0,05$).

This IM can be responsible, partly, by glycemic lack found in 48 (41,02%) patients who showing glycemic value $\geq$ 100 mg/dL. The blood sugar overall average shows about 107 ± 41 mg/dL being that was observed a high variation between the patients compared with glycemic levels. Moreover, was found in our study, with significance $p < 0,05$, that the patients which use multidrug, have a major glucose average (122 ± 54) if comparing to patients who not use multidrug (94,7 ± 16,6). A study called "Diabetes na América Latina" realized by Stewart and employees (2007), check that 78% of diabetics evaluated who taken oral hypoglycemic or insulin showed glycemic control inappropriate, in other words, showed fasting venous blood sugar from 110mg/dL. Another study mentioned by Araújo et al. (2010), realized in Pelotas-RS, also found that 40% of patients in treatment showed glycemic control unsatisfactory, corroborating with this study, determining that even if the patients making use of hypoglycemic they not keep blood sugar under control.

In relation to multidrug use could to see that even making use of this practice not was possible to get an appropriate metabolic control, because if compared the patients who making use multidrug with who not making use, find the best control in patients who take unless 5 drugs. The same was described by Penaforte in 2012, in a study realized with diabetics patients type II.

Table 5 - Drug interactions more common in population who use multidrug.

Total interactions	Interactions more frequents	Effects
91 interactions	Hydrochlorothiazide/metformin - 17 patients	Hydrochlorothiazide can interfere in diabetic control, increasing the blood glucose. Also to increase the rare condition risk but grave and potentially deadly recognized as lactic acidosis that can occur occasionally during the treatment with products containing metformin.
	Captopril/metformin - 12 patients	Using captopril with metformin can intensify the metformin effects in reduce blood sugar, may cause hypoglycemia.
	Enalapril/metformin - 13 patients	Using enalapril with metformin can potentially the metformin effects in reduce blood sugar, may cause hypoglycemia.

The BMI reduction in addition to colaborate to arterial pressure reduction, also collaborate for reduction of blood glucose. Therefore, the nutritional reeducation together with pharmacological treatment are an important therapeutic approach to control and also to chronic diseases prevention.

The AC measure, was found with variable significance to $p < 0,05$, where the women who making use multidrug showing AC of 103,8 ± 13,3 cm, higher than the women without multidrug use which had values of 99,9 ± 10,3 cm, according to table 1 shows. The results found agree

with the study from Vieira and Cassiani (2014) where most of patients found with high BMI and AC.

According to the Diretrizes Brasileiras de Obesidade (2009/2010), the AC and BMI values represent that the patients from study have raised risk for cardiovascular and metabolic diseases and are obese I, because have values above to propose by WHO, where the AC values should to find lower than 80 and 94 for women and men, respectively. Were considered obese I due to be the rates between 30-34,9 Kg/m², according to WHO, and the expectation is that BMI being between 18,5-24,9 Kg/m². This high variables represent risks for patients and result overload in people quality life.

In the evaluation of quality life and nutritional questionnaires, could notice very low *scores*, mainly in the patients sample who making use multidrug (Table 5), the Functional capacity (FC), Limitations by Physical Aspects (LPA) and Pain were more worrying *scores*, with 28,3%, 15,2% and 31,2%, respectively. At the moment of interview the patients showed the habit to drink little water, and difficulty for exercises, many times, due to your limitations, influencing negatively in nutrition questionnaire low scores these patients. Comparing the patients that making use multidrug with who not making use, got many significant variables ($p<0,05$) like Functional Capacity (FC), Limitations by Physical Aspects (LPA), Pain, General State of Health (GSH), Vitality (V), Social Aspects (SA) and Mental Health (MH), indicating that the patients who used more drugs have lower scores, in other words, lower quality lifestyle compared with the patients which not making use multidrug.

A study realized by Ramos and Ferreira (2011), where were examined 30 diabetic patients cared in HiperDia Program from Municipal Health Unit in Belém-Pará city, was applied in these patients the same quality of life questionnaire that was used in our que study. The male participants had low scores in functional capacity (48,5%), vitality (47%) and social aspects (36,25%), compared with the female scores, and these got very low scores in emotional aspects (5%).

Campos et al. (2013) found similar results with the research where the areas with greater commitment were Vitality (V) with 65,7 ±22,5%, Pain with 67,6 ± 21,4 %, General State of Health (GSH) with 65,8 ± 28,4% and Mental Health with 67,6 ± 21,4 %, so in this research the areas had a lower percentage than another study. A score that made positive contribution for patients was Social Aspects (SA) with average 62,1 ± 33,4 %, in a Miranzi et al. study (2008) where was used the instrument *World Health Organization Quality of Life* (WHOQOL-bref), also was found the social relations like positive aspect to patients, but reported the physical and psychological contributing positively for population.

Table 6 - *Scores* about life and food quality from total sample questionnaires, that making use multidrug and not making use multidrug. FC: functional capacity, LPA: limitation by physical aspect, GSH: general state of health, V: vitality, SA: social aspects, LEA: limitation by emotional aspects, MH: mental health, AQ: alimentary questionnaire.

	*CF %	*LAF %	*DOR %	*EGS%	*V%	*AS%	LAE %	*SM %	QA	Total of patients %
TOTAL SAMPLE	41,8 ±33,8	29,4 ±39,6	40,6 ±29	45,9 ±19,7	56,3 ±23,7	62,3 ±33,6	49 ±47,2	57,9 ±23	40,9± 14,1	117 (100%)
MULTIDRUG	28,3 ±27	15,8 ±29,6	30,3 ±25,6	38,9 ±18,6	49,1 ±22,9	50,6 ± 34,7	37,6 ±46,7	51,7 ±23,9	39,5 ±16,3	54 (46,1%)
NOT USE MULTIDRUG	53,3 ±35,2	41,8 ±43,4	48,7 ±28,6	51,7 ±18,9	63,7 ±22,4	72 ±29,5	58,6 ±46,2	63,5 ±21	42,4 ±12,2	63 (53,8%)

*Variable with significance $p<0,05$.

CONCLUSION

The chronic diseases like AH and DM has been increasingly, because are directly related with life expectancy that also has been increasing. The highest number these illnesses, brings consequently more drugs consumption by these patients, because these drugs are necessary to diabetes and hypertension control. Furthermore, the drugs association is used to reduce the chronic complications arising these diseases that can appear in the long term, and consequently the patients quality of life being better. However for the pharmacological treatment to be effective is necessary to occur the healthy habits at the same time. With the evaluation pharmacotherapeutic profile these patients, understood a wide drugs using, with high multidrug prevalency, in old women with simultaneous chronic diseases. Might be the drug interactions occur, with undesirable effects to pressure and glycemic levels control. The patients evaluated had quality lifestyle scores very low, mainly between the patients who making use many drugs, indicating that, generally, the drug use is not quality of life synonymous. The multidrug shows a commitment level in the aspects of patients quality of life from this study. The multidrug, the lack of physical exercises, and the inappropriate nutritional habits result in onus for lifestyle quality. In this context, the pharmacoepidemiological studies were promising instruments, acessible, low-cost, with fast

results for planning and improvement of health services quality, where can be implemented to a pharmacotherapy rational promotion and patients awareness through to health education.

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