

The fragile patient management in the territory: results of a pilot study of monitoring of individuals over 65 at risk in summer 2014

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Article history

Received: September 13, 2016

Accepted: September 29, 2016

Published: September 30, 2016

Abstract

In his daily activities a general practitioner wonders about a patient's probability to see his state of health altered due to external factors that could influence it. Surely some risk factors, both modifiable and not modifiable, can interact with external factors to increase the incidence of diseases or ailments that compels one person to go under medical care, to the emergency room or in serious cases to hospitalization and / or exitus. The summer period, and in particular the risk of heat wave in big cities, as reported in the literature, is an additional risk factor for the development of difficult health situations.

Keywords: general practitioner, frail patients, summer, heat waves, risk factors, elderly

Introduction

According to the scientific evidences both national and international, the term "frail" identifies a subject of advanced or very advanced age, not self-sufficient, chronically affected by multiple pathologies, in an unstable state of health, in whom the effects of ageing and diseases are often complicated by socio-economic problems (Ferrucci L. et al 2001-SSIGG) [1].

In the frail elderly there is a decline of the homeostatic mechanisms which leads to a reduction of the biological response capacity to stressful events. This may result in a greater frequency of diseases, more complications, multiple knock-on failures and very negative outcomes

such as permanent disability or the exitus. This is followed by an important physical and cognitive decay and a significant deterioration in quality of life and a high consumption of resources [2].

The percentage of those who exceed 65 years compared to the overall population has risen from 6,2 % at the beginning of the last century to 20 % in 2009 and it is estimated to reach 26.5% in 2030. The percentage of people over 80 has increased significantly too, from a little less than 1 % in 1901 to 5,6 % in 2009 and it is estimated to reach about 9% in 2030 [3].

Old age is characterized by the occurrence of frailty, whose prevalence increases with age, in particular after age 75, since it was found in 10-25% of people over 65 and in 40-50% of those over 80 years living in the territory. In the over-sixties the prevalence of chronic

diseases is equal to 68%, while the prevalence of disability is 23.5% reaching 47.2% of people over 80. This epidemiological trend is increasing the rate of hospitalization of the elderly as the hospitals are hosting an increasing proportion of frail elderly [2].

Heat waves

The effects of the extreme climatic conditions over the summer on mortality is internationally recognised as an important public health problem. In fact, if up to now the available data show that the heat waves can be defined as extreme and exceptional events, in recent decades and in the various areas of the world these have become more frequent and probably will continue to be the case, given the gradual warming expected for our planet. It is therefore important to evaluate what happens to the people's health during heat waves and to arrange lines of action for the prevention and the control of health damage.

A heat wave is a prolonged period of extreme weather conditions, characterized by high temperatures and in some cases by high rates of relative humidity. Besides the temperature values, heat waves are defined by their duration: it has in fact been shown that prolonged periods of extreme weather conditions have a greater impact on health than isolated days with the same weather conditions [4].

The dramatic effects recorded in the course of the summer of 2003 have shown as a not expected heat wave might bring lethal outcomes and serious damage to the population's health. In Europe it has caused more than 70,000 deaths excess in 12 countries (mainly in France, Germany, Spain and Italy), with larger effects in particular on people aged over 75, residing in urban centers, suffering from chronic illnesses, functional disability, in a condition of loneliness and socio-economic discomfort. Italy was one of the first countries in Europe to activate a national program of measures for the prediction and the prevention of the heat waves effects on human health. In the national context, in fact, it was activated in 2004 the project "national surveillance system, forecast and alarm for the prevention of heat waves effects on the population health" promoted by the National Department of Civil Protection (DPC). Within the project, coordinated by the Department of Epidemiology of SSR Lazio Region, alarm systems have been achieved for the prevention of the effects of the heat on human health, called Heat Health Watch Warning System (HHWWS). The HHWWS systems are cities - specific and, using weather forecasts for each city, are able to provide up to 72 hours in advance the occurrence of environmental conditions at risk to human health and the impact on mortality associated with them. Today the system HHWWS is active in 27 cities [5].

Identification of the population at risk

The scientific data gained from epidemiological studies made in different countries of the world as a result of heat waves, and also in Italy after the summer of 2003, allowed to ascertain which part of the population is more subject to succumb to the effects of extreme heat.

In particular, it identified as the most vulnerable people aged between 0 and 4 and those over 65, people suffering from cardiovascular and respiratory diseases, those with mental discomfort, alcohol and drugs-addicted, individuals who are not self-sufficient who depend on others for their daily living activities. In many cases, especially in children and in the elderly, the main problem is the inability of the body to thermo-regulate in an effectively way and then to respond adequately to extreme temperature changes. In addition to medical factors, however also environmental and socio-medical factors come into play, so the definition of a section of the population at risk must take into consideration the combination of all these factors.

Identify the people at risk, therefore, constitutes the first step to apply preventive measures, from those simple relate to the everyday life and to the family and medical organization at local level, to those more structural, such as the organization of air conditioned spaces in reception facilities such as rest homes and day centers for the elderly [4].

The factors which produce an increasing frailty and predispose to suffer the most serious effects of heat waves are due to three main categories :

- A) personal and social characteristics:
- B) state of health:
- (C) environmental characteristics:

and just the housing conditions represent a risk factor of primary importance for the population subgroups more susceptible to the effects of ambient heat. Because of the climatic effect that generates the phenomenon called "heat island urbana" living in an urban situation or subway exposes to an increased risk than living in a rural environment. The urban centers, in fact, are characterized by a reduced ventilation, a high concentration of mechanical components which generate heat and a higher population density [8].

The GP is the main point of reference for his own patients particularly as regards existing therapies and the information about the prevention of events related to the heat. It is the first "sensor" of health events on the population, therefore it could usefully serve as a "sentinel" of anomalous events. The identification of the susceptible population as well as that at high risk due to the effect of heat waves is a task of MMG [7].

The summer season 2014

During the summer 2014 the system of prevention and alarm (HHWWS), has been operating since 15 May to 15 September in 27 cities, capitals of regions and municipalities with over 200,000 inhabitants. According to the weather forecast at 72 hours, daily bulletins of alert were drafted that reported any adverse conditions for health for the same day and for the next two days, through graduated levels of risk, defined in relation to the seriousness of the events: the bulletins, normally, are sent to the Ministry of Health, to the Department of Civil Protection and to the reference centres of each city for the activation of the information network and the preventive actions in socio-health areas. In 27 cities where the alarm system has been operational, before the summer the Ministry has proceeded to locate local reference centers (CL) to which send daily bulletin forecast/alarm and the names of those responsible for every CL, with the task of planning and activate the interventions in emergency phase (level 2 and 3), to contact for any information during periods of particular concern. The integration between interventions is essential in the healthcare, in the social and socio-welfare and the active involvement of GP, which play a key role throughout the summer period for the creation and the revision of the registry of susceptibility to active surveillance of his patients at highest risk and especially to inform and educate the elderly and their care-givers.

Studies of comparison of the effects of the high temperatures and the evaluation of effectiveness of prevention interventions implemented, reveal in the last ten years a significant reduction of mortality in the Italian cities, associated with the temperature rise. These results are in part attributable to phenomena of adaptation of the population and in part to the programs of preventions activated in several Italian cities.

Every year during the summer period the ministry promotes a campaign of information/communication that takes the name of "safe Summer" with the aim of informing and making aware the population about health risks related to the warm and about the possibility to anticipate them. Population informed is certainly less subjected to suffer the adverse effects of the heat wave. It then becomes important to identify ways of dissemination of general recommendations to promote right and prudent behaviours in people [5][6].

Overall the summer 2014 is elapsed without particular thermal anomalies, characterized by a single heat wave, even if very intense (7-14 June).

It results from the above that the impact of heat waves is not homogeneous on the population and numerous epidemiological studies have identified numerous population subgroups more susceptible to the effects of the warm. It is for people with reduced responsiveness because of advanced age, presence of chronic diseases or for socio-economic conditions of hardship and social isolation.

The objective of the study that we conducted during the summer season 2014 is precisely to demonstrate whether there is a difference in the outcomes established on the population at risk randomised to age, sex and Cardiovascular Risk, treated in the two arms with two intensities of intervention diversified in terms of time and informative material used.

The detection by the data was possible thanks to the participation to the project of the students of the VI year of the Bachelor Degree in Medicine and Surgery of the channel C of the University of Rome "La Sapienza".

Materials and Methods

Inclusion criteria

In our study, the criteria used for the selection were:

- older than 65 years
- The presence of specific diseases, formed from folders computerized clinical
- The presence or absence of R.C.V.
- It will seek also to evaluate if some sanitary data are useful to indicate an increased risk:
- the absence of co-habiting persons
- The use of some drugs extracted from the archive of pharmaceutical requirements
- Low socio-economic level, where available information on this indicator.

Recruitment

By the extraction data system the populations over 65 of two general practitioners were examined, which follow approximately a total of 2500 patients.

The study includes patients who have had at least one contact with a GP over the past 18 months and for who it is available the phone number to the patient folder, which is fundamental to the conduct of the audit summer (approximately 600 patients).

By the extraction data system patients who do not have coded pathologies affecting are excluded :

- Diabetes Mellitus
- Cardiovascular Diseases
- brain diseases
- Respiratory Diseases
- CNS diseases
- Tumors

Randomization

So the study includes about 300 patients. Two homogeneous groups A and B of 150 patients are formed, for the following parameters: age, sex, presence or absence of R.C.V.

All randomized patients should be inserted into the statistical analysis on the basis of the type of assigned intervention.

Treatment

Every group is treated according to the rules of the "usual care" with regard to the recommendations inherent the precautions to take during the summer months during the period of higher temperature following the advice of the Ministry of Health.

In the study of General Medicine Doctor is affixed a poster that gives the recommendations to tackle the heat advisory.

Patients have to sign a consent form for the authorization to the data collection.

For each patient in the period between 15 June - 31 July will be detected the socio-health situation according to a model established in recent years by the Operational Plan Regional intervention for the prevention of the effects on health of heat waves.

Group A: from 15 June to 31 July written material with warnings and advices will be delivered to the patients belonging to this group. In addition, from 1 July to 31 August, patients randomised to this group will be contacted by phone every ten days for a detection by

questionnaire health situation and to report any problems found. The term of the next call can be anticipated in the case of signalling of risk 3 (heat wave), detectable by the information bulletins of Civil Protection and published on the website of the Ministry of Health.

Group B: patients belonging to this group will be contacted by telephone within 72 hours to the signalling of risk 3 (heat wave), as well as by regional protocol.

In the event of a heat wave lasting several days is sufficient to perform a call within the alarm period.

For each telephone contact it will be administered to the patient a questionnaire designed to detect data sanitary to assess any changes from the beginning of the project and/or from the previous contact.

Outcome

Every variation that has led to a deterioration in his state of health with the involvement or not of the SSN will be evaluated, with consumption of resources, public or private.

In a definitive way you will evaluate:

- Reduction of physical capacity (subjective symptoms)
- Additional consumption of drugs
- Visits Outpatient medical
- Home visits
- Visits to the Emergency Room
- Shelters
- Premature mortality

Results

Data analysis of this population at risk has not highlighted particular significance, linked to the absence of particularly stressful conditions as heat waves.

The data emerged are shown in **Table 1** and **2**.

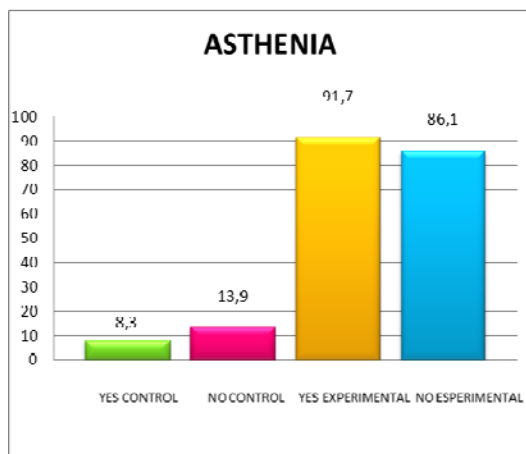
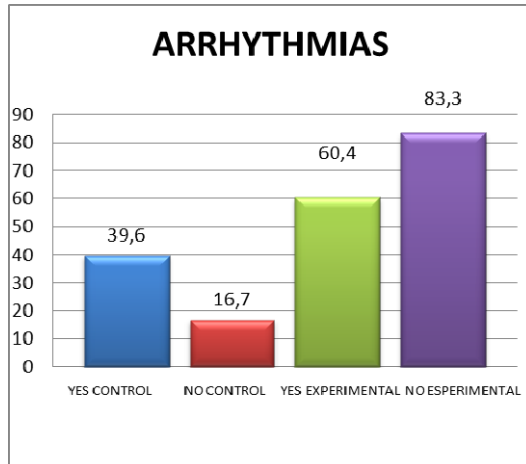
Table 1

Tabella 1 Caratteristiche del Campione			
VARIABLE	CONTROL GROUP n. (%)	EXPERIMENTAL GROUP n. (%)	P (Chi-square)
SEX			
F	29 (60,4)	42 (58,3)	
M	19 (39,6)	30 (41,7)	
AGE	78 (65-95)	76 (65-92)	0,221
TUMORS			
YES	13 (27,1)	26 (36,1)	0,301
NO	35 (72,9)	81 (67,5)	
PSYCHIC DISORDERS			
YES	12 (25,0)	14 (19,4)	0,469
NO	36 (75,0)	58 (80,6)	
DIABETES			
YES	10 (20,8)	10 (13,9)	0,317
NO	38 (79,2)	62 (86,1)	
ISCHEMIC HEART DISEASES			
YES	7 (14,6)	10 (13,9)	0,915
NO	41 (85,4)	62 (86,1)	
CONDUCTION DISTURBANCES			
YES	2 (4,2)	2 (2,8)	0,678
NO	46 (95,8)	70 (97,2)	
ARTIMIE CARDIAC			
YES	19 (39,6)	12 (16,7)	0,005
NO	29 (60,4)	60 (83,3)	
CONGESTIVE HEART FAILURE			
YES	1 (2,1)	4 (5,6)	0,351
NO	47 (97,9)	68 (94,4)	
CEREBROVASCULAR DISEASE			
YES	7 (14,6)	14 (19,4)	0,492
NO	41 (85,4)	58 (80,6)	
CHRONIC PULMONARY DISEASES			
YES	19 (39,6)	22 (30,6)	0,307
NO	29 (60,4)	50 (69,4)	
CNS DISEASES			
YES	3 (6,3)	13 (10,8)	0,187
NO	45 (93,8)	107 (89,2)	
I.R.C.			
YES	3 (6,3)	8 (11,1)	0,366
NO	45 (93,8)	64 (88,9)	

Table 2

Tabella 2 Presenza dei sintomi nei 2 gruppi			
VARIABLE	GRUPPO CONTROLLO n. (%)	GRUPPO SPERIMENTALE n. (%)	P(Chi-quadrato)
BREATHLESSNESS			
YES	0 (0,0)	4 (5,6)	0,097
NO	48 (100,0)	68 (94,4)	
DYSPNOEA			
YES	1 (2,1)	0 (0,0)	0,219
NO	47 (97,9)	72 (100,0)	
ASTHENIA			
YES	4 (8,3)	10 (13,9)	0,353
NO	44 (91,7)	62 (86,1)	
BRONCHITIS			
YES	0 (0,0)	4 (5,6)	0,097
NO	48 (100,0)	68 (94,4)	
FALLS			
YES	2 (4,2)	2 (2,8)	0,678
NO	46 (95,8)	70 (97,2)	
EMATEMESI			
YES			
NO	48 (100,0)	72 (100,0)	
HEADACHE			
YES	1 (2,1)	6 (8,3)	0,152
NO	47 (97,9)	66 (91,7)	
CRAMPS			
YES	0 (0,0)	2 (2,8)	0,244
NO	48 (100,0)	70 (97,2)	
DIARRHEA			
YES	1 (2,1)	0 (0,0)	0,219
NO	47 (97,9)	72 (100,0)	
FEVER			
YES	1 (2,1)	0 (0,0)	0,219
NO	47 (97,9)	72 (100,0)	
GASTRITIS			
YES	0 (0,0)	2 (2,8)	0,244
NO	48 (100,0)	70 (97,2)	
LOSS OF APPETITE			
YES	1 (2,1)	6 (8,3)	0,152
NO	47 (97,9)	66 (91,7)	
HYPOTENSION			
YES			
NO	48 (100,0)	72 (100,0)	
LIPOTHYmia			
YES	0 (0,0)	2 (2,8)	0,244
NO	48 (100,0)	70 (97,2)	
ALERTNESS ALTERED			
YES			
NO	48 (100,0)	72 (100,0)	
VOMITING			
YES	1 (2,1)	0 (0,0)	0,219
NO	47 (97,9)	72 (100,0)	
ARTHRITIS			
YES	1 (2,1)	0 (0,0)	0,219
NO	47 (97,9)	72 (100,0)	

From this it can be deduced that, within the framework of specific diseases that may increase or worsen the condition of frailty, particular differences between the control group and the experimental group were not found. A significant variable is instead represented by the presence of cardiac arrhythmias, better highlighted in the control group (39.6%), compared to the experimental group (16.7%).



The presence of symptoms such as breathlessness and asthenia proves to be greater in the experimental group (respectively 5.6% and 13.95%), while symptoms such as ematemesi, hypotension, Lipothymia and altered alertness did not occur in the two groups. However we are faced with the partial results, for the reasons set forth above.

Discussion

The data obtained are scarcely significant, given the absence of heat waves, so in the absence of risk levels 2 and 3, the experimental group, subjected to intensive monitoring, has not manifested symptoms relating to the

stressful event. The control group, instead, have been contacted by telephone only once, at the end of the project.

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Conclusions

In view of the results obtained, whilst the purpose we set out with this project has been partially achieved, there is the opportunity of a much earlier and privileged approach to issues regarding primary care and frail patient management.

We would therefore like to see a greater awareness by everyone about the frailty theme for a better empathy with the sick, and a greater consideration on the whole system of primary care, trying to acquire a capacity for a more suitable behaviour in the handling of frail patients both in the bio-medical and psycho-social context.

Thanks to the young gentlemen of the VI year of the Master Degree in Medicine and Surgery of the channel C of the University of Rome " La Sapienza", a thought to Dino and Marco that participated in the project and prematurely passed away in the summer of 2015 in the period of Graduation session.

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