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The very elderly people in the Home Care Program for cancer patients of the ANT Foundation

I GRANDI ANZIANI NEL PROGRAMMA DI ASSISTENZA DOMICILIARE ONCOLOGICA DELLA FONDAZIONE ANT

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Introduzione. L'aumento della speranza di vita nel mondo occidentale è stato accompagnato da un aumento dell'incidenza e della prevalenza del cancro. Gli anziani rappresentano una quota molto importante tra questi pazienti e spesso richiedono specifici percorsi diagnostici, programmi terapeutici e assistenziali che la malattia richiede. Tra i pazienti oncologici anziani, quelli di età superiore a 84 anni, pur rimanendo ancora una minoranza, sono sempre più una realtà. Su questa popolazione esistono finora pochi studi.

Metodi. Il programma di assistenza domiciliare (PAD) oncologica della Fondazione Associazione Nazionale Tumori (ANT) rappresenta la più grande esperienza privato non profit in Italia nel campo delle cure palliative domiciliari per i malati di cancro. I pazienti arruolati nel programma nel biennio 2012-2013 sono stati suddivisi in due categorie di età: i grandi anziani (> 84 anni) e gli altri pazienti (<85 anni). I due gruppi sono stati confrontati in base a dati demografici, parametri clinico-assistenziali e organizzativi

Risultati. Nei due anni considerati, sono entrati nel PAD di ANT 10.679 pazienti. L'età mediana era di 74 anni e 1.795 (16,8%) dei pazienti aveva un'età superiore a 84 anni. Questi pazienti erano più spesso di sesso femminile (53,1%), presentavano una maggiore prevalenza di tumori gastrointestinali, ginecologici, genito-urinario ed ematologici, avevano un più basso performance status secondo Karnofsky (mediana 40 vs 50), una maggiore prevalenza di astenia ma una minore prevalenza di dolore (66,4% vs 72,5%) con una percentuale più bassa di coloro che ricevevano oppioidi (16,3% vs 33,3%). Complessivamente, il 70,3% dei pazienti è deceduto durante il periodo di studio. Di questi, il 75,3% è deceduto a casa dopo un'assistenza di durata media di 44 giorni (range 1-690). Una maggiore percentuale di grandi anziani deceduti a casa risulta significativamente più alta rispetto agli altri pazienti (83,3% vs 73,7%). L'intensità di cura per i grandi anziani, valutata sulla base del numero di accessi domiciliari di medici, infermieri e altri operatori, era sovrapponibile a quella offerta agli altri pazienti.

Conclusioni. I grandi anziani sono ormai una componente quantitativamente rilevante tra i malati di cancro in fase avanzata. Essi richiedono un impegno assistenziale specificamente focalizzato sulle caratteristiche cliniche e sui bisogni individuali. La Fondazione ANT offre a questi pazienti un programma di assistenza domiciliare simile a quello offerto a tutti gli altri pazienti.

Parole chiave: Grandi anziani, Assistenza domiciliare, Cure palliative, Cancro avanzato, Intensità di cura

INTRODUCTION

In western countries, we are witnessing a gradual but significant increase in human life expectancy in the population. In Italy it reaches by

now to 84 years for women and 80 years for men. In addition, people older than 84 years represent 2.9% of the total population as reported in the last census conducted in 2012¹. Aging is considered to be the major cause of

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increased tumor pathology observed in recent decades. The curve of cancer incidence, in fact, increases steadily until the age of 85 and then begins to decrease². This phenomenon has led to a subsequent increase of elderly people in which the diagnosis of malignancy is made, necessitating relative treatments and, at the same time, requiring an adequate patient care and assistance response. It is now an accepted fact that the treatment of these patients should not be determined by their chronological age, but more importantly must stem from an appropriate clinical evaluation. The Multidimensional Geriatric Assessment, for example, may identify patients who may receive standard treatments in contrast to those where this is not feasible due the coexistence of comorbidities and / or conditions of inherent fragility^{3,4}. On the other hand, in those above 84 years, the opportunity to benefit from standard cancer treatments are drastically reduced, while the need for social intervention and palliative care treatment is increasingly essential. The issue of the very elderly with cancer is emerging and studies providing information on natural history, clinical characterization and care service models in this population are substantially lacking.

The home care program of the Associazione Nazionale Tumori (ANT) Foundation represents the largest private non-profit experience in Italy in the field of palliative home care for cancer patients. Conceived in 1985 in Bologna, Italy, ANT is now active in 9 Italian regions, predominately operating in the territories of Emilia-Romagna and Puglia. Patient care is provided free of charge by a multi-professional team that provides 24-hour around-the-clock home care coverage without discrimination on the grounds of race, religion, age, and national origin^{5,6}. The multidisciplinary team is composed by a doctor, a nurse and a psychologist, all experienced in palliative care. Supplementary services, like, rehabilitation, nutritional support, pharmacy and social service are also available⁷.

Current demographic data show progressive aging of the population in recent decades and ANT's home care program bears witness to this fact. While assisting patients of all ages (including pediatric) a median age of about 70 years has been determined. This means that the number of very elderly patients is quite substantial. Thanks to a recent implementation of a new informatic system, a complete set of data (demographic, clinical, social and health) is registered

on each and every cancer patient assisted by the home care program of The ANT Foundation, making it possible to conduct an analysis of many significant parameters. The present study has now been conducted on the population of the very elderly assisted in 2012-2013 with the aim of characterizing aspects of clinical intervention and to assess various aspects of care offered to these patients in comparison with analogous characteristics in the younger population.

PATIENTS AND METHODS

The Home Care Program (HCP) of the ANT Foundation addresses cancer patients at an advanced stage and is organized in 20 Oncological Hospitals at Home (OHH) distributed in 9 Italian regions. Since 2012, the Program is supported by a dedicated computer system (Vitaever[®]) which collected at the time of assistance activation information on clinical and social status of each patient and allows the monitoring during the course of the disease at home.

PATIENTS

This analysis refers to all patients who have been assisted in the 20 OHH during the biennium 2012-2013. These are patients suffering from advanced malignant tumors in which disease diagnosis and possible treatments had been previously performed at various in-patient and out-patient hospital settings. As usual, the HCP activation is decided either by the family doctor (acting on his own initiative) or at the request of the hospital (where the patient is undergoing treatment) or by the patient himself and/or family.

The baseline assessment of symptoms was performed through the use of a coding scale first adopted by ANT over 40 years ago⁸ and was solely based upon physician assessment and not on a patient self-report scale. In particular, the assessment of pain is based on the intensity, type and effectiveness of drugs used to control the symptom: 0 = no pain, 1 = non-continuous pain (requiring non-opioid analgesics only when needed), 2 = continuous pain that requires continuous analgesic use (non-opioids or minor opioids), 3 = pain that requires continuous administration of major opioids. Every pain score was divided into two subscores (A or B) depending on whether the pain is controlled or not by the drugs used at the time. For oth-

er symptoms, i.e. asthenia, anorexia and dyspnea, three intensity scores are used (0 = absent, 1 = moderate, 2 = severe). The moderate/severe scores were based on objective semi-quantitative parameters. In particular for anorexia, grade 1 is less than 50% reduction in intake nutrition-compared to the period before the disease and grade 2 - is more than 50% reduction in intake nutrition compared to the period before the disease; for asthenia, grade 1 - reduced physical activity with fatigue (Karnofsky performance status > 50), absent physical activity (Karnofsky performance status ≤ 50); for dyspnea, grade 1 - upon exertion and grade 2 - at rest. The intensity of home care assistance is evaluated through the use of 3 indicators proposed by the Italian Ministry of Health⁹: Days of Care (DoC), Days of Actual Care (DAC) and the mean Coefficient of Care Intensity (CCI). DoC indicates the number of days from the first day to the last day of assistance, DAC indicates the number of days in which there was at least one medical or nursing or other operator visit to the patient's home, and CCI indicates the ratio between DAC and DoC.

STATISTICAL ANALYSIS

The primary objective was to observe and evaluate whether cancer patients older than 84 years, differ from the other patients enrolled in the HCP in terms of clinical features presented at the time of entrance into the home care assistance program and the intensity of care received. For the analysis, patients were divided into two age groups: 18-84 years, and ≥ 85 years of age. Patients aged < 18 years were included in the general description of the cases, but subsequently were excluded from the statistical analysis. The period of observation for this patient population was equal to 2 years (started on 1.1.2012 to 31.12.2013). The distribution in the two age classes of the following demographic and clinical parameters have been considered and compared: sex, place of residence, Karnofsky performance status, type of primary tumor, presence/absence and intensity of symptoms such as pain, asthenia, anorexia and dyspnea. Vital status at the end of the period (31.12.2013), the place of any death, and the intensity of care parameters (DoC, DAC, CCI) were also compared. The statistical analyses were performed using the NCSS statistical package¹⁰.

Descriptive statistics were reported as mean, range (min-max), median (and 95% CI when

appropriate) for numeric variables such as age, performance status, DoC, DAC, CCI, and as absolute and relative percentages for categorical variables as sex, place of residence, primary tumor, pain, asthenia, anorexia, dyspnea and place of death. The chi-square test to compare categorical variables between the 2 groups by age was used. The Student t-test (non-parametric test or the Mann-Whitney test when appropriate) for continuous variables was used. It was considered statistically significant $P < 0.05$. All p-values quoted are two-sided.

RESULTS

From 1.1.2012 to 31.12.2013, 10679 patients with advanced cancer were enrolled into the ANT HCP. Table I shows the main features of the whole series: median age was 74 years (range 1-105), M / F ratio was slightly in favor of males (53.9%) and median KPS was 50 (range 0-100). The main regions of residence were Puglia and Emilia Romagna where about 70% of enrolled patients was concentrated. The very elderly are mostly represented in the Emilia-Romagna region and, overall geographically, more in the north-central areas of Italy as compared to the south. The most frequent sites of primary tumors were GI, chest and breast which together accounted for more than 70 % of tumors. Thirty-five patients were <18 years of age and were eventually excluded from subsequent analyses. Consequently the total number of patients examined was 10644.

THE VERY ELDERLY

A total of 1,795 patients older than 84 years (the very elderly) accounted for 16.8% of the cases studied. Some features of these patients differed from the younger patients: the prevalence of women, mostly present in the regions of Northern and Central Italy, a slightly lower KPS (40 vs. 50), a greater prevalence of the gastrointestinal, genito-urinary, and haematological tumours with a lower presence of chest tumours (Tab. I).

SYMPTOMS AND AGE

In the very elderly patients, the prevalence of pain is relatively lower than that found in other patients (66.4% vs. 72.5%). This finding is further corroborated by evidence that demonstrates the percentage of patients older than 84 requiring analgesic treatment with strong

Tab. I. Main characteristics at entry according to age.

	All pts*	< 85 years	≥ 85 years	P
N	10679	8849 (82.9%)	1795 (16.8%)	
M (%)	5755 (53.9%)	4889 (55.2%)	842 (46.9%)	0.000 **
Age median (range)	74 (1-105)	69 (18-84)	89 (85-105)	0.000 °°
KPS median (range) IC 95%	50 (0-100) 50-50	50 (0-100) 50-50	40 (0-100) 40-40	0.000 °°
Region of residence				
Puglie	4117 (38.6%)	3557 (86.4%)	545 (13.2%)	
Emilia-Romagna	3298 (30.9%)	2639 (80.0%)	645 (19.6%)	
Marche	892 (8.4%)	709 (79.5%)	182 (20.4%)	
Lombardia	852 (8.0%)	726 (85.2%)	126 (14.7%)	0.000 **
Toscana	618 (5.8%)	478 (77.3%)	137 (22.2%)	
Basilicata	416 (3.9%)	344 (82.7%)	72 (17.3%)	
Campania	228 (2.1%)	202 (88.6%)	25 (11.0%)	
Lazio	148 (1.4%)	125 (84.5%)	23 (15.6%)	
Veneto	110 (1.0%)	69 (62.7%)	40 (36.4%)	
Primary tumor site (%)				
GI	32.4	31.8	36.3	
Lung & pleura	17.3	18.5	11.5	
Gyn	8.7	8.4	10.4	
Breast	7.3	7.4	7.2	
GU	6.3	5.7	8.9	
Hem	3.7	3.3	5.3	0.000 **
CNS	3.5	3.8	2.1	
HN	2.4	2.6	1.2	
Sarc	2.6	2.5	3.0	
Others	15.8	16.0	14.1	

* 35 Patients (0.3%) were younger than 18 years; they were excluded from the subsequent tables and statistical analyses

** statistical analysis: Chi-square °° non parametric two-sample Mann-Whitney test

opioids is about the half of those younger patients similarly treated (16.3% vs. 33.3%) and additionally by the difference between cases in which pain is not controlled by strong opiates (5.3% vs. 12.3%) (Tab. II). Asthenia is the most frequent symptom (92.9% of cases) in the whole population of patients cared for. The prevalence is slightly, but significantly, higher in the very elderly, especially in score 2 patients (50.8% vs. 41.8%) (Tab. III). Other typical symptoms of advanced cancer patients including anorexia and dyspnea are present in 71.8% and 41.3%, respectively, without a

significant differing distribution in the very elderly as compared to the younger patients (Tabs. IV, V).

OUTCOME AT THE END OF THE OBSERVATION PERIOD

By 31.12.2013, 7,486 patients (70.3%) had died during the two year study period. The percentage of patients who died was higher among the *very elderly* (72.4%) as opposed to the other patients (69.9%) (P = 0.033). Out of the total number of deceased patients, 5,640 (75.3%) were followed at home until exitus with a median DoC of 44 days (range 1-690) while 21.4%

Tab. II. Pain at entry according to age.

Intensity	All pts		< 85 years	≥ 85 years	P
0	2.674	28.5%	27.5%	33.6%	
1A	1.374	14.6%	14.1%	17.3%	
1B	619	6.6%	6.3%	7.9%	
2A	1.192	12.7%	12.2%	15.2%	0.000
2B	651	6.9%	6.6%	8.7%	
3A	1.826	19.5%	21.0%	11.0%	
3B	1.044	11.1%	12.3%	5.3%	
Evaluable	9.380	100%	7779	1601	

Statistical analysis: Chi square test

Legend: independently of intensity, subscore A means pain is not controlled by drug treatment; subscore B means pain is controlled by drug treatment

Tab. III. Asthenia at entry according to age.

Intensity	All pts		< 85 years	≥ 85 years	P
0	659	7.1%	7.4%	5.5%	
1	4.618	49.6%	50.8%	43.7%	0.000
2	4.030	43.3%	41.8%	50.8%	
Evaluable	9.307	100%	7721	1586	

Statistical analysis: Chi square test

Tab. IV. Anorexia at entry according to age.

Intensity	All pts		< 85 years	≥ 85 years	P
0	2469	28.2%	28.3%	27.8%	
1	4535	51.7%	51.8%	51.3%	0.631
2	1760	20.1%	19.9%	21.0%	
Evaluable	8764	100%	7248	1516	

Statistical analysis: Chi square test

Tab. V. Dispnoea at entry according to age.

Intensity	All pts		< 85 years	≥ 85 years	P
0	5026	58.7%	59.0%	57.3%	
1	2915	34.1%	33.8%	35.2%	0.474
2	615	7.2%	7.1%	7.5%	
Evaluable	8556	100%	7087	1469	

Statistical analysis: Chi square test

had died in hospital, hospice or other residential structures. In 3.2% of the cases, the place of death was not known. The *very elderly* died more frequently at home than younger patients (83.3% vs. 73.7%) ($P = 0.000$) (Fig. 1) without, however, differentiating in the median DoC (Tab. VI).

CARE INTENSITY

The median of mean CCI in patients who died at home was 0.41 with no significant difference between the patients older than 84 and the other patients (Tab. VI). Table VII shows the DoC and mean CCI in patients still alive at the end of

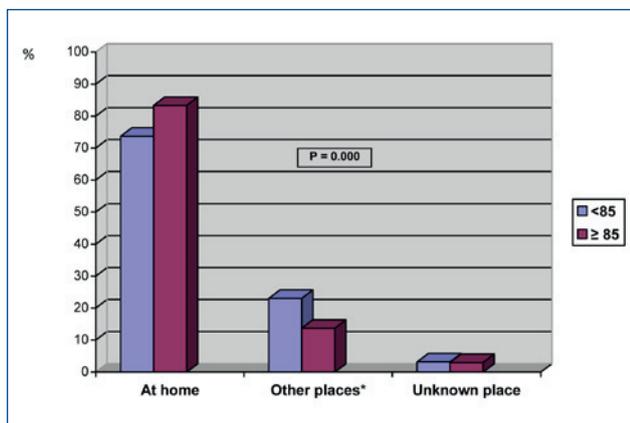


Fig. 1. Place of death.

the period examined. The median DoC was 143 days and median of mean CCI was 0.18. Even the intensity of care for these patients is age independent.

DISCUSSION

The HCP for cancer patients provided by the ANT Italia Foundation is currently enrolling

about 5,000 new patients per year of which 70% live in areas of the regions of Puglia and Emilia-Romagna. The median age is 74 years with a very wide range (1-105 years). The proportion of patients aged ≥ 85 years is substantial, reaching 16.8% of the cases, corresponding to approximately 900 new cases per year. This is consistent with the observation of Italian Association of Cancer Registries which recorded in the year 2009 a 20% incidence of cancer in the population of the very elderly, however defined more extensive than that used by us (the age group of 80 - 84 years old being comprised also)¹¹. The figures that emerge from ANT's case studies, is not only an expression of a significant tumour incidence in the over 84 year old population, but is, above all, an expression of a higher prevalence of cancer in this advanced age group, in parallel with the increase in the average life expectancy of the Italian population. The comparison between the very elderly patients and other patients reveals many similarities but also significant differences. One difference is in the higher prevalence of female patients in the older class than the younger one where males slightly predominated. This is a direct result of the longer life expectancy of women as compared to men:

Tab. VI. Intensity of care in patients deceased at home.

Intensity	All pts	< 85 years	≥ 85 years	P
N	5640	4557	1083	
DoC median (range) IC 95%	44 (1-690) 42-46	45 (1-663) 43-48	41 (1-690) 38-45	0.180
Mean CCI median (range) IC 95%	0.41 (0.0-1.0) 0.40-0.42	0.41 (0.00-1.00) 0.40-0.42	0.40 (0.00-1.00) 0.38-0.42	0.159

DoC: days of care; CCI: coefficient of care intensity; IC 95%: 95% confidence interval
Statistical analysis: non parametric two-sample Mann-Whitney test

Tab. VII. Intensity of care in patients living at December 31, 2013.

Intensity	All pts	< 85 years	≥ 85 years	P
N	3158	2663	495	
DoC median (range) IC 95%	143 (1-730) 132-153	146 (1-730) 134-155	127 (1-730) 107 -160	0.101
Mean CCI median (range) IC 95%	0.18 (0.0-1.00) 0.17 - 0.18	0.17 (0.0-1.00) 0.17 - 0.18	0.18 (0.0-1.00) 0.17 - 0.19	0.132

DoC: days of care; CCI: coefficient of care intensity; IC 95%: 95% confidence interval
Statistical analysis: non parametric two-sample Mann-Whitney test

as the 15th Italian census 2011 has shown, more than 67% of the population above the age of 84 is female¹. Another difference that affects the very elderly is their geographical distribution in the territories in where the HCP of the ANT Foundation is active, being more represented in the Emilia-Romagna region and in the regions of Northern and Central Italy as compared to the Puglia region and other regions of the South. These findings may represent not only a different epidemiological distribution but also differences related to family, organizational and cultural local contingencies. It is a well-defined epidemiological data that in patients with advanced cancer, tumors of the gastro-intestinal tract are most prevalent² and ANT's case studies clearly demonstrates this. In the very elderly, this prevalence is even more pronounced than in younger patients (36.3% vs. 31.8%). A higher prevalence, although more limited, in the very elderly also concerns itself with genitourinary, gynaecological, and hematological tumours. On the contrary, the prevalence of pleural and lung tumours is lower as compared patients aged < 85 consistently with epidemiological data¹². Again, these differences do not only express a true varying incidence of cancers in this age group of patients, but also an accumulation effect in this age group of patients with advanced cancer in which the diagnosis had been made before the age of 85.

The clinical characterization of the patients older > 84 years shows that their general condition is majorly compromised, expressed by a lower performance status upon entrance together with a higher prevalence of severe asthenia. At the same time, however, a lower pain intensity and prevalence has been demonstrated with a reduction in opioid use. With regards to the prevalence of anorexia and dyspnea, no major differences were shown. A slightly greater impairment of performance status in the very elderly *as* compared with the rest of the population, (as one can easily surmise), is due to foreseen age-related factors: frequent and severe comorbidities, pronounced changes in nutrition with progressive loss of lean mass, increasing frailty which strongly conditions the physical performance of the patient. A similar meaning may have the observation that in the very elderly is higher the percentage of those with severe asthenia.

Estimates of cancer pain in the elderly are limited and conflicting¹³. Whereas a systematic re-

view of cancer pain did not show any differences in the incidence of pain in the elderly compared to younger patients¹⁴, in a large study on pain management in elderly cancer patients who were admitted to nursing home, a correlation between pain reporting reduction and advanced age was reported¹⁵. Consistently with this observation, in our study the very elderly have a lower prevalence of pain and are treated with a lower percentage of strong opiate-based pain medication. These observations could be due to physiological changes in the perception of pain and an altered sensitivity to opioids in the elderly, possibly represented by a slight decrease in nerve conduction, a decrease in the number of nociceptive receptors and in the number of opioid receptors^{16 17}. However, other factors must be taken into account as the more frequent and severe co-pathologies and cognitive impairment occurring in elderly patients. These factors are most likely to cause patient underreporting of pain or its manifestations. Although in our study pain was assessed by an external observer (the doctor) and not on a self-reporting scale (i.e. VAS or NRS), the risk of pain underestimation in this advanced age group does indeed exist.

During the period considered, 70.3% of patients died with a slightly higher prevalence in the very old population. What is most interesting is the fact that a fairly large but significantly higher percentage of the very elderly die in their own homes as compared to the younger patients. Unfortunately, an actual data base regarding additional information pertaining to family and social status is lacking. Running at full capacity, ANT HCP's newly instituted informatic system should provide us with more useful information making way for a more precise data interpretation (i.e family and care-giver composition and support).

The indicator of the intensity of care at home currently proposed by the Ministry of Health of the Italian government is represented by the mean CCI previously defined. The CCI can vary from the lowest extreme 0.0 (no home visits made during the period indicated) to a maximum extreme of 1.0 meaning that the multi-disciplinary team made one or more visits in each day of the period in which the patient was enrolled into the HCP. In this study, patients followed at home until to death have a median DoC of 44 days and a mean CCI of 0.41 without substantial differences between the very elderly and other patients. For patients who were alive

at the end of the observation period the median DoC was 3 times higher than that of the deceased at home (143 days) with a significantly lower mean CCI than the deceased at home (0.18). Also in this case the great elderly received assistance very similar to that of younger patients. This data suggests that the population followed by the ANT HCP consists mainly of very advanced cancer patients (often no longer treatable or untreatable with anticancer therapy), who die within a month and a half after being enrolled. This component represents approximately 70% of the cases assisted. The other 30% is instead constituted by cases in which the disease is not in a terminal phase, often being still undergoing anticancer treatment at an outpatient hospital oncology department. For these patients the HCP is initially activated in order to integrate chemotherapy simultaneously with medical and eventually psychological home care support. Another kind of patient represented in this second component, although in a minority, are individuals who have completed cancer therapy and will continue to be seen thereafter in the HCP. This second component of patients receives a prolonged assistance in time but at lower intensity.

This study has several limitations: A) it is a retrospective study in which the affected population is selected according to certain general criteria (tumors at an advanced stage, an adequate home environment with responsible caregivers present, the general practitioner's document of consent needed home care assistance activation). This procedure can be influenced by strongly interwoven local, organizational and cultural factors. For example, the oncology department's propensity towards activating the ANT HCP may be influenced by varying sensibilities and differences in approaches of oncologists towards the integration of antitumor treatments with the palliative care, as well as the attitude of the Italian public health administrators towards the integration of public and private health care systems which vary from region to region makes inhomogeneous the implementation of HCP in the geographical areas where ANT is present. In addition, the reluctance of families to care for a loved one nearing death at home can vary depending on the geographic area and the different residential contexts (i.e. big cities vs. rural areas). We believe, however, that the quantita-

tive dimension of this study mitigates many of these interfering factors based on the results that we have reported. B) the rating scales of symptoms such as pain, asthenia, anorexia and dyspnea are not the standard ones commonly used in the literature. They are based on objective observations of the doctor who follows the patient. These scales have been developed over more than 40 years and since then constantly used by the same medical group in cancer patients both in hospital and at home settings. In the present study these scales are used especially to indicate the presence or absence of the symptom without emphasizing differences in its intensity score. In our opinion this use of the scales does maintain intra-study data validity. In addition, recently the validity of observer-rated pain assessment instruments were reported both in the detection of pain and the evaluation of pain intensity in people with dementia¹⁸. C) the results of symptoms and KPS were obtained from the evaluable patients, defined as those in which information was available in the data base corresponding to about 80% of patients entered. In our opinion, even in this case, the considerable size of the case studies strongly attenuates this restriction. D) probably the strongest limitation is represented by the scarcity of available information. In particular, additional information on the family and / or caregivers, on the patient medical history and on the monitoring of symptoms along the course of the disease would allow for better characterization of the very elderly patient. In conclusion, this study shows that the elderly are now a major component among cancer patients who have entered the advanced stage of the disease. There is extensive evidence that elderly patients suffering from oncological disease are at risk for undertreatment and care assistance not guided to their specific needs. A fortiori, these risks increase in the population of the very elderly. To counter this risk, a specific commitment is needed in order to provide for patient-centered care. Palliative care of high quality is the goal which also can be reached through the involvement of family members and/or caregivers. The data presented indicates that the ANT Foundation offers these patients, when they are supported at home by motivated family members or caregivers, an HCP entirely similar to that of the other younger patients can be provided for.

Background. The increase of life expectancy in the Western world has been accompanied by an increase in the incidence and prevalence of cancer. The elderly represent a very important share among these patients and often require specific diagnostic, therapeutic and care programs which disease management demands. Among elderly patients, those older than 84 with cancer, still remain in the minority but are increasingly manifest. Little has been studied up until now.

Methods. The Associazione Nazionale Tumori (ANT) Foundation home care program represents the largest private non-profit experience in Italy in the field of palliative home care for cancer patients. Patients who entered the program in 2012-2013 were subdivided into 2 age categories: the very elderly (> 84 years) and the other patients (< 85 years). The two groups were compared based on demographic data, clinical and organizational care parameters.

Results. In the two years considered, 10,679 patients had entered the ANT Program. The median age was 74 years and 1,795 (16.8%) of the patients were above 85 or older. Among the very elderly the majority was female (53.1%), which presented with a higher prevalence of gastrointestinal, gynecological, genitourinary and hematological tumours with a lower median Karnofsky performance status (40 vs. 50), a higher prevalence of asthenia, but with a lower prevalence of pain (66.4% vs. 72.5%) treated with a comparative lower percentage of opioid (16.3% vs. 33.3%). Overall, 70.3% of patients died during the study period. Of these, 75.3% died at home after a median duration service of 44 days (range 1-690). A greater percentage of the very elderly died at home as compared to other patients (83.3% vs. 73.7%). The intensity of care provided for the very elderly, assessed on the basis of the number of medical, nursing and other operators home visits, was superposable to that offered to other patients

Conclusions. The very elderly are now a quantitatively relevant component among cancer patients who have entered an advanced disease stage. They require a commitment of care specifically focused on clinical characteristics and on individual needs. **The ANT Foundation offers these patients a home care program similar to that offered to all other patients.**

Key words: Very elderly, Home care, Palliative care, Advanced cancer, Care intensity

REFERENCES

- 1 ISTAT: <http://www.istat.it/it/censimento-popolazione/popolazione-2011>.
- 2 AIRT Working Group. *Italian cancer figures. Report 2006*. Epidemiologia & Prevenzione 2006;30(Suppl):12-101.
- 3 Balducci L, Extermann M. *Management of cancer in older person: a practical approach*. Oncologist 2000;5:224-37.
- 4 Hurria A, Lichtman SM, Gardes J, et al. *Identifying vulnerable older adults with cancer: integrating geriatric assessment into oncology practice*. J Am Geriatr Soc 2007;55:1604-8.
- 5 Pannuti F, Tanneberger S. *The Bologna Eubiosia Project: hospital-at-home care for advanced cancer patients*. J Palliat Care 1992;8:11-7.
- 6 Tanneberger S, Pannuti F, Mirri R, et al. *Hospital-at-Home for advanced cancer patients within the framework of the Bologna Eubiosia project: an evaluation*. Tumori. 1998;84:376-82.
- 7 ANT Foundation website: <http://www.ant.it/pubbl/index.php>
- 8 Pannuti F, Lelli G, Rossi AP, et al. *Il protocollo terapeutico in clinica oncologica*. In: Pannuti F, ed. *Trattato di clinica oncologica*. Vol 1. Padova, Italy: Piccin Nuova Libreria 1984, pp. 231-262.
- 9 Nuova caratterizzazione dell'assistenza territoriale domiciliare e degli interventi ospedalieri a domicilio. www.salute.gov.it/imgs/C_17_pubblicazioni_772.
- 10 NCSS statistical package, version 07.1.12; Hintze J, 2007, NCCS LLC, Kaysville, Utah. www.ncss.com
- 11 AIRTUM: Tumors in the very elderly, November-December 2009 <http://www.registri-tumori.it/cms/it/numeri>.
- 12 Howlader N, Noone AM, Krapcho M, et al. (eds). *SEER Cancer Statistics Review, 1975-2011*. National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2011/, based on November 2013 SEER data submission, posted to the SEER web site, April 2014
- 13 Damien Urban D, Cherny N, Catane R. *The management of cancer pain in the elderly*. Crit Rev Oncol Hematol 2010;73:176-83.
- 14 van den Beuken-van Everdingen MH, de Rijke JM, Kessels AG, et al. *Prevalence of pain in patients with cancer: a systematic review of the past 40 years*. Ann Oncol 2007;18:1437-49.
- 15 Bernabei R, Gambassi G, Lapane K, et al. *Management of pain in elderly patients with cancer. SAGE Study Group. Systematic Assessment of Geriatric Drug Use via Epidemiology*. JAMA 1998;279:1877-82.
- 16 Gibson SJ, Helme R. *Age related differences in pain perception and reports*. Clin Geriatr Med 2001;17:334-51.
- 17 Fuse PG. *Opioid analgesics drugs in older people*. Clin Geriatr Med 2001;17:479-85.
- 18 Lukas A, Barber JB, Johnson P, et al. *Observer-rated pain assessment instruments improve both the detection of pain and the evaluation of pain intensity in people with dementia*. Eur J Pain 2013;17:1558-68.