# Cancer in Moroccan elderly: the first multicentric transversal study exploring the socio-demographic and economic profile of Moroccan elderly cancer patients

**Errihani H[1]**, Laayachi M[1]*,Bazine A[2]*, Aassab R[3], Arifi S[4], Benbrahim Z[5], Mrabti H[1], Khmamouche MR[6], Kairouani M[7], Raiss H[1], Majid N[7], Ouaouch S[8], Afqir S[5], Mellas N[4], Fetohi M[2], Razine R[9], **Amzerin M[10]**

***1-National Institute of Oncology, Rabat**, **2**-Moulay Ismail Military hospital, Meknes **3**-Hassan II Hospital, Agadir, **4**-Hassan II University Hospital, Fez, **5**-Med VI University hospital, Oujda **6**-Med V Military teaching Hospital, Rabat, **7**-Reginal Center of Oncology, Meknes, **8**-Proximity Center of oncology, Beni Mellal **9**-LBRCE, Faculty of medicine and pharmacy, Rabat **10-Regional Center of Oncology, Al-Hoceima***

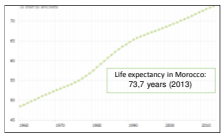
**Equal participation*

## Disclosures

Honoraria ,Adviasory Board: Pfizer ,Novartis,MSD,Roche ,Lilly,Celgene
Reseach fund :Roche

## Background

- Morocco: Young population but proportion of elderly is increasing, (7.8% in 2013 vs 6.92% in 2002)[1] is expected to double by 2050 (80% in developing countries):
  - Fertility decline
  - increase in life expectancy(73,7 years in 2013).
- Cancer incidence is increasing (Big casablanca regional registry)[2]: Disease of elderly (incidence in 2012, versus incidence in 2016).
- In our daily practice: Lack of a structured management and specialized oncologists whereas elderly patients are increasing
- Poor published Moroccan data (posters, one descriptive mono institutional study at National Institute of Oncology).
- Objective of the study: to determine socio-demographic characteristics, quality of life and G8 score of elderly moroccan cancer patients


*1)-OMS, 2015, 2)-Enquête nationale sur les personnes âgées, HCP, (CERED), 2006, 3)-Ershler WB. J Support Oncol. 2003 Nov-Dec;1(4 Suppl 2):5-10, 4)-Ferlay J, et al. Lyon: IARC Press; 1999. Updated September 29, 2000; 5)-Lahcen Belyamani et al. Med. 2015 Aug-Sep;93(8-9):532-6*

## Materials and Methods

- Multicentric transversal study, 4 months.
- 9 Moroccan Medical oncology departments:
  - *Hassan II Oncology Center, Med VI University Hospital, Oujda.
  - * Regional Center of Oncology, Al-Hoceima.
  - *National Institute of Oncology, CHU Ibn-Sina, Rabat.
  - *Mohammed V Military Teaching Hospital, Rabat.
  - *Hassan II University Hospital, Fès.
  - *Moulay Ismail Military Hospital, Meknes.
  - *Regional Center of Oncology, Meknes.
  - *Proximity Center of Oncology, Beni-Mellal.
  - *Hassan II Hospital, Agadir.

## Patients

- Inclusion criteria:

  *Aged 65 years old or over.

  *Diagnosed with a histologically confirmed cancer.

  *Any unit of medical oncology department.

  *Informed consent.

## Questionnaire

- Participants were assessed prospectively using a questionnaire covering:
  - *Socio-demographic and economic data.
  - *Medical history.
  - *G8 and daily habits.
  - *EORTC-QLQ C30 (Validated Moroccan version).
- Once for each patient.
- Duration: 20-30minutes.

## Statistical analysis

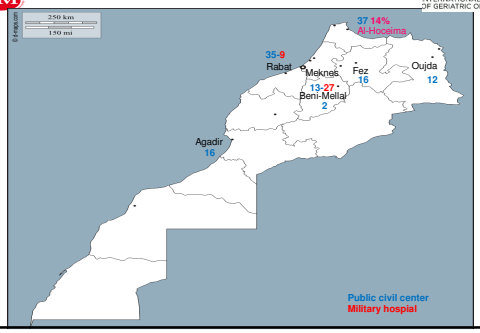
- We explored all the population included.
- Than: Comparison between subgroups
  - *Age:65-70 vs ≥71 years old.
  - *Sex.
  - *Other comparisons are planified: economic level, medical coverage,..
- Statistical analysis: Chi-2, T-Student / Mann & Whitney tests ($p < 0.05$).
- SPSS 13.0.

## Ethical committee approval

- The study was approved by the ethical committee of the university of Medicine and Pharmacy of Rabat on June 4th; 2015.

## Results: global population

June 15th, 2015- october, 15th, 2015: 164 patients included



## Socio-demographic characteristics

| | N | % |
|---|---|---|
| Center | | |
| -University hospital | 63 | 38.4 |
| -Regional center of oncology | 63 | 38.4 |
| -COP | 2 | 1.8 |
| -Military hospital | 35 | 21.3 |
| Context | | |
| -Day hospital | 59 | 45.7 |
| -Consultation | 52 | 40.3 |
| -Hospitalization | 17 | 13.2 |
| -Emergency | 1 | 0.8 |
| Age | | |
| -Mean | 73.18 ± 6.01 | |
| -65-70 years old | 62 | 38 |
| -=>70 years old | 101 | 62 |
| Sex | | |
| -Male | 84 | 51.2 |
| -Female | 80 | 48.8 |
| Habitat | | |
| -Urban | 106 | 65 |
| -Rural | 57 | 35 |
| Civil status | | |
| -Single | 2 | 1.3 |
| -Married | 100 | 62.5 |
| -divorced | 3 | 1.9 |
| -Widower | 55 | 34.4 |
| Religion | | |
| -Muslim | 164 | 100 |

Majority of patients were treated in public hospitals, living in urban areas
34% were widowers and 60% married, mean age was 73 years

## Socio-demographic characteristics

| | N | % |
|---|---|---|
| Number of children | | |
| -0 | 12 | 7.7 |
| -1-3 | 32 | 20.5 |
| -4-6 | 56 | 35.9 |
| ->6 | 56 | 35.9 |
| Level of education | | |
| -Illiterate | 87 | 53.4 |
| -Mosque | 32 | 19.6 |
| -Elementary | 24 | 14.7 |
| -High school | 17 | 10.4 |
| -University | 2 | 1.2 |
| Personal pension | 39 | 24.2 |
| Spouse pension | 19 | 11.8 |
| Financial aid from children | 85 | 52.8 |
| Still working | 11 | 6.8 |
| Monthly income in MAD (euros) | | |
| -<1500 (136) | 72 | 46.2 |
| -1500-3000 (136-273) | 42 | 26.9 |
| -3000-5000 (273-455) | 18 | 11.5 |
| -5000-8000 (455-728) | 11 | 7.1 |
| ->8000 (728) | 13 | 8.3 |

70% were illeterate or went only to coranic school,
95% were unemployed and 70% were low-income patients
Half of them beneficiated from family financial support

## Socio-demographic characteristics

| | N | % |
|---|---|---|
| Medical cover | | |
| -Ramed | 100 | 61.3 |
| -CNOPS | 12 | 7.4 |
| -CNSS | 14 | 8.6 |
| -FAR | 29 | 17.8 |
| -Private insurance | 3 | 1.8 |
| -None | 5 | 1.8 |
| Living alone | 7 | 4.3 |
| Living with spouse | 72 | 44.4 |
| Living with children | 100 | 61.7 |
| Living with brother/sister | 6 | 3.7 |
| Living in an institution | 0 | 0 |
| Accompanying to the hospital | | |
| -None | 22 | 13.7 |
| -1 person | 98 | 60.9 |
| ->1 person | 41 | 25.5 |
| Request by family to hide the diagnosis from the patient | 25 | 15.3 |

Majority of patients (62%) had governmental medical assistance sheme, were living with their children and 85% only were aware of the diagnosis of cancer

## Clinical data: Toxic habits

| | N | % |
|---|---|---|
| Smoking | | |
| -No | 94 | 57.7 |
| -Weaned | 52 | 31.9 |
| -Active | 4 | 2.5 |
| -Passive | 13 | 8 |
| -Alcohol use | | |
| -No | 147 | 89.6 |
| -Weaned | 17 | 10.4 |
| -Active | 0 | 0 |
| Use of medicinal plants | 20 | 12.2 |

Majority (57%) of patients were non smokers and 32% were past smokers.
Alcohol use was very rare (10%)
Medicinal plants were used by 12% of patients.

## Religious practice

| | N | % |
|---|---|---|
| Ablutions | 146 | 93.6 |
| Wet ablutions | 98 | 62.8 |
| Dry ablutions | 56 | 35.9 |
| Prayer | 142 | 86.6 |
| Prayer standing | 47 | 28.7 |
| Prayer sitting | 102 | 62.2 |
| Prayer lying | 12 | 7.3 |
| Ramdan Fasting | | |
| -No for health issue | 116 | 71.2 |
| -Yes | 47 | 28.8 |
| Optional Fasting | 35 | 21.3 |

All patients are muslims, prayer and ablutions are a way to assess their autonomy
86% were practicing their prayer but majority of them in a sitting position
Only 30% were fasting ramadan (even against medical advice) and 70% were not able to fast

## Clinical data: Comorbidities

| | N | % |
|---|---|---|
| Hypertension | 50 | 30.5 |
| Diabetes | 42 | 25.6 |
| Dyslipidemia | 11 | 6.7 |
| Cardiopathy | 9 | 5.5 |
| Osteoporosis | 24 | 14.7 |
| Arthrosis | 40 | 24.4 |
| Renal insufficiency | 12 | 7.3 |
| ICC ≥ 2 (Charlson Comorbidity Index) | 23 | 14.2 |
| ICC ≥ 3 | 11 | 6.8 |
| Fall in previous year | 54 | 32.9 |
| Fracture in previous year | 8 | 4.9 |
| Polypharmacy (≥3) | 39 | 26.4 |
| Performans status | | |
| -<2 | 87 | 53.7 |
| ->2 | 75 | 46.3 |
| Pain | | |
| -Pain free | 56 | 35.4 |
| -Mild | 47 | 29.7 |
| -Moderate | 40 | 25.3 |
| -Severe | 15 | 9.5 |

The most frequent comorbidites were hypertension, diabetes and arthrosis.
7% had CCI ≥3

## Clinical data: Cancer characteristics

| | N | % |
|---|---|---|
| Localization | | |
| -Breast | 38 | 23.2 |
| -Colorectal | 26 | 15.9 |
| -Lung | 23 | 14 |
| -Stomach | 13 | 7.9 |
| -Prostate | 13 | 7.9 |
| -Ovary | 10 | 6.1 |
| -Bladder | 9 | 5.5 |
| -Other | 32 | 19.5 |
| Stage | | |
| -Localized | 41 | 25.2 |
| -Locally advanced | 22 | 13.5 |
| -Metastatic from the start | 72 | 44.2 |
| -Recurrence | 28 | 17.1 |
| Status | | |
| -1st consultation | 10 | 6.1 |
| -Workup | 13 | 8 |
| -Receiving treatment | 117 | 71.8 |
| -Follow up | 23 | 14.1 |

Breast, colorectal and lung cancers were the most frequents histologies. 44% were metastaic from the sart

Breast, colorectal and lung cancers were the most frequent cancers.
61% were treated in a palliative setting

## Clinical data: Treatment

| | N | % |
|---|---|---|
| Chemotherapy | 140 | 88.6 |
| Radiochemotherapy | 14 | 8.9 |
| Hormonal therapy | 10 | 6.3 |
| BSC | 4 | 2.5 |
| Refusal of intravenous treatment | 5 | 3 |
| Type of traitement | | |
| -Standard | 130 | 80.7 |
| -Adapted | 31 | 19.2 |
| G-CSF | 5 | 3.1 |
| Strategy | | |
| -Curative | 57 | 34.8 |
| -Palliative | 107 | 65.2 |

88% of patients received chemotherapy because they were recruited in medical oncology departments but only 19% had adapted protocol

## Clinical data: Frailty, Dependance

| | N | % |
|---|---|---|
| G8 | | |
| -<=14 | 26 | 16.6 |
| -<14 | 131 | 83.5 |
| Toilet | | |
| -Independent | 126 | 76.8 |
| -Partially dependent | 24 | 14.6 |
| -Totally dependent | 14 | 8.5 |
| Toilet | | |
| -Independent | 113 | 68.9 |
| -Partially dependent | 35 | 21.3 |
| -Totally dependent | 16 | 9.8 |
| Bath | | |
| -Independent | 84 | 51.2 |
| -Partially dependent | 53 | 32.3 |
| -Totally dependent | 27 | 16.5 |
| Displacement inside house | | |
| -Independent | 113 | 69.3 |
| -Partially dependent | 38 | 23.3 |
| -Totally dependent | 12 | 7.4 |
| Displacement outside | | |
| -Independent | 82 | 50 |
| -Partially dependent | 49 | 29.9 |
| -Totally dependent | 33 | 20.1 |
| Food | | |
| -Cooking + errands | 20 | 12.3 |
| -Cooking | 20 | 12.3 |
| -Cooking made by another person | 122 | 75.3 |
| Number of meals per day | | |
| -3 meals + snacks | 64 | 39 |
| -3 meals | 61 | 37.2 |
| -Less than 3 meals | 39 | 23.8 |

75% had abnormal G8 scale
Independancy for daily habits (75%) except cooking

## QoL Data: EORTC-QLQ C30

| | Scores |
|---|---|
| Functions | |
| -Physical function | 47.43 ± 32.36 |
| -Role function | 44.88 ± 37.23 |
| -Cognitive function | 68.20 ± 28.91 |
| -Emotional function | 61.86 ± 31.77 |
| -Social function | 79.75 ± 31.08 |
| Symptoms | |
| -Fatigue | 55.27 ± 33.99 |
| -Nausea.Vomiting | 18.81 ± 28.63 |
| -Pain | 41.10 ± 35.82 |
| -Dyspnea | 29.24 ± 34.50 |
| -Insomnia | 34.35 ± 37.48 |
| -Anorexia | 38.24 ± 39.41 |
| -Constipation | 23.72 ± 33.27 |
| -Diarrhea | 11.24 ± 23.48 |
| -Financial difficulties | 69.12 ± 39.29 |
| Global QoL Score | 52.20 ± 25.67 |

Cognitive, emotional and social functions scores were in the average of normal
Financial difficulties was the predominant symptom

## Results: By age

- No signifcant difference was found between patients 65-70 and ≥ 71 years old in:
  - *Socio-demographic characteristics.
  - *Toxic habits.
  - *Cancer characteristics and treatment.
  - *Frailty, dependance for basic daily activities.
- Significant difference was found in:

| | 65-70 N (%) | ≥ 71 N (%) | p |
|---|---|---|---|
| Arthrosis | 7 (11.3) | 32 (31.7) | 0.003 |
| Predicted one year survival | 85.27 ±6 .99 | 77.03 ± 6.59 | <0.001 |
| Fall in previous year | 14 (22.6) | 39 (38.6) | 0.03 |
| Prayer sitting | 31 (50) | 70 (62.6) | 0.01 |

## Results: By sex

| | Male N (%) | Female N (%) | p |
|---|---|---|---|
| Civil status | | | <0.001 |
| -Single | 1 (1.2) | 1 (1.3) | |
| -Married | 73 (89) | 27 (34.6) | |
| -Divorced | 1 (1.2) | 2 (2.6) | |
| -Widower | 7 (8.5) | 48 (61.5) | |
| Level of education | | | <0.001 |
| -Illiterate | 20 (24.1) | 67 (83.8) | |
| -Mosque | 27 (32.5) | 5 (6.3) | |
| -Elementary | 19 (22.9) | 5 (6.3) | |
| -High school | 15 (18.1) | 2 (2.5) | |
| -University | 2 (2.4) | 0 | |
| Personal pension | 39 (46.4) | 0 | <0.001 |
| Spouse pension | 2 (2.4) | 17 (21.1) | <0.001 |
| Still working | 11 (13.1) | 0 | 0.001 |
| Monthly income in MAD (euros) | | | 0.02 |
| -<1500 (136) | 30 (36.6) | 42 (56.8) | |
| -1500-3000 (136-273) | 22 (26.8) | 26 (27) | |
| -3000-5000 (273-455) | 11 (13.4) | 7 (9.5) | |
| -5000-8000 (455-728) | 10 (12.2) | 1 (1.4) | |
| ->8000 (728) | 9 (11) | 4 (5.4) | |
| Medical cover | | | <0.001 |
| -Ramed | 38 (45.2) | 62 (78.5) | |
| -CNOPS | 9 (10.7) | 3 (3.8) | |
| -CNSS | 11 (13.1) | 3 (3.8) | |
| -FAR | 22 (26.2) | 7 (8.9) | |
| -Private insurance | 2 (2.4) | 1 (1.3) | |
| -None | 2 (2.4) | 3 (3.8) | |

Higher level of education and income in men
Less medical insurance for women
Higher rate of widows in comparison with widowers

| | Male N (%) | Female N (%) | p |
|---|---|---|---|
| Smoking | | | <0.001 |
| -No | 27 (32.5) | 67 (83.3) | |
| -Weaned | 52 (62.7) | 0 | |
| -Active | 4 (4.8) | 0 | |
| -Passive | 0 | 13 (16.3) | |
| -Alcohol use | | | <0.001 |
| -No | 67 (79.8) | 80 (100) | |
| -Weaned | 17 (20.2) | 0 | |
| -Active | 0 | 0 | |
| Osteoporosis | 1 (1.2) | 23 (29.1) | <0.001 |
| Food | | | <0.001 |
| -Cooking + errands | 9 (11) | 11 (13.8) | |
| -Cooking | 2 (2.4) | 18 (2.5) | |
| -Cooking made by another person | 71 (86.6) | 51 (63.8) | |
| Sexual activity | 24 (28.9) | 6 (7.5) | <0.001 |

Higher rate of toxic habits and sexual activity for men, are not cooking their meals
Higher rate of osteoporosis in women

## Discussion

## Limits of the study

- Limits:
  - *Exhaustivity: 1 à 2 co-investigators per centre.
  - * Short duration of the study and limited recruitement (but ongoing)

## Age: ≥ 65 years old

- Threshold of “old age” is variable between studies: 60, 65, 70 years old.
- Aging: Biology , culture (Retiring, tasKs, implication in society)
- Morocco: Young population (>60ans en 2013 : 7.8 % vs >20% en Europe.. UK, Belgique, France).

1)-Surbone et al. On Behalf of the SIOG Task Force on cultural competence in the Elderly. Annals of Oncology 18: 633-638, 2007
2)-Given B et al. Physical functioning of elderly cancer patients prior to diagnosis and following initial treatmentNurs Res. 2001 Jul-Aug;50(4):222-32
3)-Glascock AP, Feinman SL. A holocultural analysis of old age. Comparative Social Research. 1980;3:311-32.
4)-WHO, Global Health Observatory country views
5)-CIA, 2015

- This study does not reflect Moroccan epidemiology in elderly: conducted in medical oncology departments (localized Head and neck, lung and cervical cancers were not included).
- Moroccan elderly cancer patients characteristics:
  - Muslims and practising believers
  - High rate of Illiteracy: Dependance++
  - Low-income
  - Low comorbidity rate?? (underdiagnosed)
  - Strong familial and social relationships, sometimes overprotected (15.3% vs 40.2% in a monocentric study): financial and moral help

1)-Enquête nationale sur les personnes âgées, HCP, (CERED), 2006
2)-Kanesvaran R et al. J Geriatr Oncol. 2014 Apr;5(2):171-8
3-Baltar A et al. J Geriatr Oncol. 2015 Sep;6(5):401-10
4)-Lkhoyaali S et al.. Tunis Med. 2015 Aug-Sep;93(8-9):532-6.

- International instrumental tools not validated on Moroccan population yet: Evaluation of basic daily activities of Moroccan elderly.
- High proportion of patients needing comprehensive geriatric assessment (according to G8 results)
- Falls = literature. But, under-recognized: to screen systematically (neurotoxic chemotherapy).
- Dependance seen in our patients regarding cooking activity could be explained by the fact that men do not cookusually. It is considered a « female activity » (Confirmed by the analysis according to sex).

1)-Enquête nationale sur les personnes âgées, HCP, (CERED), 2006
2)-Kanesvaran R et al. J Geriatr Oncol. 2014 Apr;5(2):171-8
3-Baltar A et al. J Geriatr Oncol. 2015 Sep;6(5):401-10
4)-Lkhoyaali S et al.. Tunis Med. 2015 Aug-Sep;93(8-9):532-6.

- Results according to age suggest that we can maintain 65 years old as threshold to include patients in elderly studies since there was no significant difference between the two subgroups. (Pay attention to falls in older old patients)
- Results according to sex, show that, in comparison with men, elderly Moroccan female are more economically vulnerable (low income, no pension, no marriage if husband dies) leading them to take refuge in the family.

## Conclusion

- The first Moroccan transversal study designed to explore characteristics of elderly cancer patients.
- Crucial role of the family, with moral and financial support.
- However, There is a deep economic frailty especially among women, requiring an urgent care.
- Moroccan population is in transition..we should anticipate+++

## How to proceed?

- Cancer care is improving in Morocco: National Cancer Prevention and Control Plan (2010-2019)
  - Better knowledge of cancer epidemiology (Moroccan regional cancer registries
  - early detection programs
  - Equipment of many anticancer centers (latest technologies)
  - Access to medicines, even for low income patients
  - Palliative care
  - Improvement of cancer research
- No specific program for elderly (future): more urgent matters?
- University diploma of geriatry (Faculty of medicine of Rabat) but no specialized training in oncogeriatry

- Implementation of a comprehensive geriatric assessment adapted to the Moroccan context (PhD study ongoing).
- International partnerships to achieve the following objectives:
  - *Education: workshops, training, fellowships,..
  - *Face-to-face/Virtual multidisciplinary consulting meetings.
  - *Clinical research.

**Thank you**