# Geriatric phone follow-up in the management of older patients treated for cancer: Telog study results

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## ARTICLE INFO

## ABSTRACT

Introduction: Geriatric assessment may require a specific follow-up implementation during oncological treatment. The main objective of our study was the nurse phone questionnaire validation, in terms of feasibility, and concordance of data collected compared to a medical geriatric follow-up (blind) consultation carried out three months after the initial assessment.

Materials and methods: This interventional, prospective, multi-center study has included patients aged 70 years and over, referred to geriatric consultation before receiving oncological treatment. Patients with an estimated life expectancy less than three months, unable to communicate by telephone or to complete the written consent, with an ECOG PS (Eastern Cooperative Oncology Group Performance Status) at four, or MMSE <18/30 (Mini Mental State Examination) were not included. Feasibility was considered if items were answered by phone for at least 80% of patients and, for concordance, if Cohen's Kappa coefficient was at least 0.7, between phone and consultation's answers data.

Results: 131 patients were included with a median age of 81 years [70–95], 62.6% of women ($n = 82$). Phone questionnaires were completed for 78.6% of patients ($n = 103$) with a median duration of 12 min per call [5–37]. 95 patients have completed the study, for whom concordance was only found for IADL (Instrumental Activity of Daily Living) Medication-item.

Conclusion: It is important to define the profile of older patients treated for cancer who can benefit from phone follow-up. If a phone follow-up questionnaire carried out by a nurse is proven to be accurate, it would facilitate geriatric follow-up and space out consultations.

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## 1. Introduction

The SIOG (International Society of Geriatric Oncology) recommends geriatric assessment (GA) for older patients with cancer, before introducing oncological treatment. The GA allows to detect potential reversible frailty, leading to optimal or adapted oncological treatment, even palliative care. Domains and tools are recommended in order to perform a complete assessment [1,2]. Despite the PS (Performance Status), geriatric frailty also predicts chemotherapy adverse events, including mortality [3–8].

On the contrary, there is no recommendation and few studies deal with geriatric follow-up during oncological treatment. The issues regarding the follow-up organization and the way to prevent frailty still remain.

Standardized geriatric assessment is time-consuming and requires patient's transportations from home to hospital center, to be avoid if possible.

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In oncology, phone follow-up is regularly proposed in daily practice. The systematic review performed by Liptrott gathered 50 studies, usually randomizing phone intervention versus hospital physician consultation follow-up, either detecting adverse events with counseling, or providing psychological support [9]. Nevertheless, most of these studies concerns adults with median age less than 75 years [9–11]. Suh's meta-analysis lists 16 studies evaluating nurse phone intervention efficacy on distress and quality of life [12]. A pilot study in older patients with cancer has evaluated the follow-up feasibility and impact on quality of life through geriatric supportive care councils during six months [13]. However, even if it enables to check the implementation of recommendations, based on initial assessment, frailty can switch to upper or lower level, and need to be reassessed in order to adapt supportive care plan.

Others studies using nurse phone intervention target on supervision of oral adherence to cancer treatment, providing psychological support to patients in palliative care and caregivers, or detecting cancer relapses.

In France, an experimentation took place in Toulouse, in geriatric oncology [14], gathering chemotherapy adverse events and screening frailty. Nevertheless, we wonder if information collected with older patients by phone are accurate.

Thus, we decided to evaluate a nurse phone questionnaire that could be used in daily practice, to identify older patients needing to be addressed to a physician geriatric consultation.

In order to do so, we elaborated a nurse phone questionnaire, based on geriatric domains assessed through short questions, easy to ask. Beside oncological field, geriatric frailty phone screening has already been studied [15,16]. We have not selected the whole CSHA-CFS Telephone Version questionnaire (Chinese-Canadian Study of Health and Aging Clinical Frailty Scale) [15], reducing ADL (Activity of Daily Living) to the Katz 6 items version and choosing the mini Instrumental ADL 4 items. We have taken away the question on comorbidities, considering our patients did not know them well. Conversely, we added the number of medications daily taken, polypharmacy impacting on appetite loss and adverse events risk, and also, weight, pain, balance trouble, mood and memory complaint.

In the TICSm (Telephone Interview for Cognitive Status-modified) [16], cognition is thoroughly analyzed but require twenty minutes only for this domain. In addition to other necessary questions, it would last too long and induce fatigue. Furthermore, the French version was validated only in women [16], so we decided to limit cognitive evaluation to temporal orientation and subjective complain.

The ability to answer phone questionnaire can indeed be influenced by cognitive impairment, which needs to be identified before proposing phone follow-up in oncology. That's why we didn't include patients with initial MMSE below 18/30, challenging auto-evaluation ability [17]. In Chan's study evaluating frailty by phone, the median MMSE score was 25.8 ± 4.6.

Therefore, our primary objective was to evaluate phone questionnaire feasibility (time and attempts) and concordance between phone and consultation data collected. Furthermore, we aimed to describe frailty decline three months after the initial geriatric assessment.

## 2. Materials and methods

### 2.1. Study design

This prospective multicentric study took place in the Comprehensive Cancer Centre François Baclesse, Caen University Hospital Center, Bayeux and Dieppe Hospital Centers, from February 2015 to 2018.

The local ethics committee approved the study protocol (Comité de Protection des Personnes Nord-Ouest III). All patients gave written informed consent. This trial is registered as ID-RCB 2014-AO-1526-41, clinical trial NCT02583035.

### 2.2. Participants

The eligibility criteria were as follows: aged 70 years and over; having newly diagnosed localized or metastatic solid cancer or haematolgical malignancies, adressed to a geriatric consultation before initiating cancer treatment (chemotherapy, radiation therapy, hormone therapy or surgery) and French speaker.

Patients were not included if life expectancy was less than three months, or in case of hearing or speaking disabilities, or with a ECOG-PS at four, or with a MMSE <18/30; or if candidate for palliative radiotherapy only.

### 2.3. Sample size

Based on both evaluations done at three months, first by phone interview and then during the geriatric follow-up consultation, each questionnaire item will be considered as routinely evaluable by phone if it can be filled by for 80% of patients and if, among them, Cohen Kappa coefficient agreement between phone and consultation answers is equal or greater to 0.7. Assuming a true value of 0.8 and 20% of disagreement, 95 evaluable patients are required to estimate Cohen's Kappa coefficient with an 80% confidence interval and a 0.2 width interval. Taking into account not responding patients (around 20%) and lost to follow-up (10%), 131 patients have been included in this study.

### 2.4. Statistical analysis

Patient's characteristics of each included patients are described, as well as the rates of patients who could not be contacted by phone after three attempts and those who were evaluated by phone and during geriatric consultation. Both Cohen's Kappa coefficient and disagreement rate has been estimated for each questionnaire item. In order to evaluate the impact of cognitive impairment at inclusion on the concordance of by-phone and geriatric consultation assessment, the rate of disagreement of each item according to MMSE score (<28/30 or not) has been measured by using a Chi2-test, or Fisher exact test if necessary. In the same way, the concordance was compared, item by item, according to the degree of fragility detected (fit, vulnerable or frail sub group according to JP Droz and L Balducci 2010 classification) [18]. A two-sided alpha risk of 5% was set for each statistical analysis, except for the main objective analysis.

### 2.5. Assessment and tools

80 days after the initial geriatric assessment, the nurse coordinator sends a letter reminding the phone appointment to the patient, as well as to prepare the prescription sheets, and the possibility to be assisted by a caregiver to answer questions.

About three days before the follow-up consultation, the nurse calls the patient to fill the questionnaire (three attempts to join the patient were accepted).

The patients had to come to the follow-up physician geriatric consultation at J90, for one hour. The selected concordance criteria are detailed in Table 1, and the three months geriatric decline criteria are defined in Table 2.

## 3. Results

According to the flow chart, feasibility is reached concerning the number of filled phone questionnaires, but fewer patients have completed the study until the physician follow-up consultation, just leading to 95 evaluable patients, required for concordance analysis (Fig. 1).

**Table 1**

Concordance criteria for each geriatric assessment domain in data collected between nurse phone questionnaire and geriatrician consultation (M3).

| Domains | Nurse phone | Geriatrician consultation | Concordance criteria |
|---|---|---|---|
| Dependance | Activity of Daily Living 6 items | Activity of Daily Living 6 items | Same score for each item of each scale |
| | Mini IADL 4 items | Mini IADL4 items | |
| Nutritionnal Status | « Is there a weight loss more than three kilos in the last three months? » | Weight measure compared to the one three months before | Patient answers « Yes » and weight loss >3 kg measured; Patient answers « No » and no weight loss found or ≤3 kg |
| Polypharmacy | « How many medications do you daily take? » | Number of medications daily taken written on prescriptions (brought by patient) | Same number ±1 |
| Falls | « Have you fallen at least once in the last three months? » | At least one fall occured in the last three months | Same answer « Yes » or « No » |
| Balance impairment | « Have you balance trouble? » | UniPodal Test | Patient answers « No » and UPT ≥ 5 s <br> Patient answers « Yes » and UPT < 5 s |
| Depression | « Do you feel depressed? » | Geriatric Depression Scale-15 | Patient answers « No » and GDS < 5/15 <br> Patient answers « Yes » and GDS ≥ 5/15 |
| Cognition | « What is the complete date today? » | « What is the complete date today? » | Concordance if dates are both wrong or right <br> No concordance if one is wrong |
| | « Do you have any memory loss? » | Dubois episodic memory Test (five words immediate and delayed recall, including cueing) | Patient answers « No » and Dubois Test =10/10 <br> Patient answers « Yes » and Dubois Test <10/10 |
| Pain | « Have you felt pain in the last week? » (Numerous or Verbal Scales) | « Have you felt pain in the last week? » (Numerous or Verbal Scales) | Patient answers « No » and Numerous or Verbal Scale = 0 <br> Patient answers « Yes » and Numerous Scale≥1/10 or Verbal Scale ≥1/4 |

### 3.1. Population characteristics

The characteristics of the 131 included patients are presented in Table 3, with a median age of 81 years [70–95]. There were few patients with hematological malignancies (two lymphomas), for whom other research studies were prioritized. Among 129 patients with solid tumors, primary cancer was breast ($n = 49$), genitourinary ($n = 28$), digestive ($n = 19$), head and neck ($n = 9$), lung ($n = 8$), cutaneous ($n = 6$) and others ($n = 10$). The mean MMSE score was 28/30 [18–30]. Mean Comorbidity Illness Rating Scale-Geriatric (CIRS-G) score was nine [0–28] and 56 patients had at least one severe comorbidity (42.7%). Mean number of medications daily taken was six [0–18]. Mean Body Mass Index (BMI) was 26.8 [16.6–39]. The sample presents several degrees of frailty, with 20.8% fit (SIOG 1 subgroup), 42.3% vulnerable (SIOG 2 subgroup), and 36.9% frail (SIOG 3 subgroup).

### 3.2. Phone call characteristics and feasibility

78.6% of included patients ($n = 103$) answered questionnaire by nurse phone interviews, at three months. Only one attempt was

necessary for 81 patients, two for 16 patients, and three for 6 patients. 28 patients were assisted by a family caregiver during the phone interview to help answering. The median duration of the call was 12 min [5–37].

Normal cognitive status ($p = .024$), and lower age ($p = .017$) were significantly associated with feasibility (Table 4).

### 3.3. Concordance and disagreement data

The results concerning concordance analysis with Cohen's Kappa coefficient, and disagreement rate, are presented Table 5. Concordance was only found for the IADL « medications » item, with Kappa = 0.89 [0.82–0.97].

Nevertheless, the disagreement rate was below 10% for three of the six ADL-items (dressing, toileting, feeding) and two of the four mini IADL-items (telephone and medications), and above 10% for all the other data collected.

Especially in the fit subgroup (SIOG 1), disagreement rates are low for five of the six ADL-items (except for « continence » disagreement

**Table 2**

Decline criteria between M3 vs M0 geriatrician assessment consultations in each evaluation domains.

| Domains | Scale | Decline criteria |
|---|---|---|
| Dependance and physical Status | ADL | Loss ≥0,5 pt |
| | IADL | Increase ≥1 pt |
| | Performance Status | Increase ≥1 pt |
| Nutrition | Body Mass Index | Loss ≥1 pt |
| Walk and balance trouble | Timed Up and Go Test | If non feasible or >20s at M3 versus ≤20 s at M0 |
| | UniPodal Test | If non feasible or <5s at M3 versus ≥5 s at M0 |
| | Fall | If at least one fall occured in the last 3 months at M3 versus none before M0 |
| Neuropsychological | Orientation (/10 points) | Loss ≥1 pt |
| | Episodic Memory | Five words Dubois Test abnormal (<10/10) at M3 versus MMSE Three word normal recall (3/3) at M0 |
| | GDS-15 | Abnormal (5 to 15/15) versus Normal (0 to 4/15) |
| Comorbidity | Comorbidity Illness Rating Scale-G | Increase ≥1 pt. in one or several system |



Fig 1. TELOG flow chart.

Included patients (n=131)

Excluded (n=28)
- Withdrawal consent (n=12)
- Died (n=6)
- Lost of view (n=6)
- Hospitalized (n=4)

Phone interviews completed (n=103)

Withdrawal consent (n=5)

Study completion with M3 consultation (n=98)

Case Report Forms completed and analyzed (n=95)
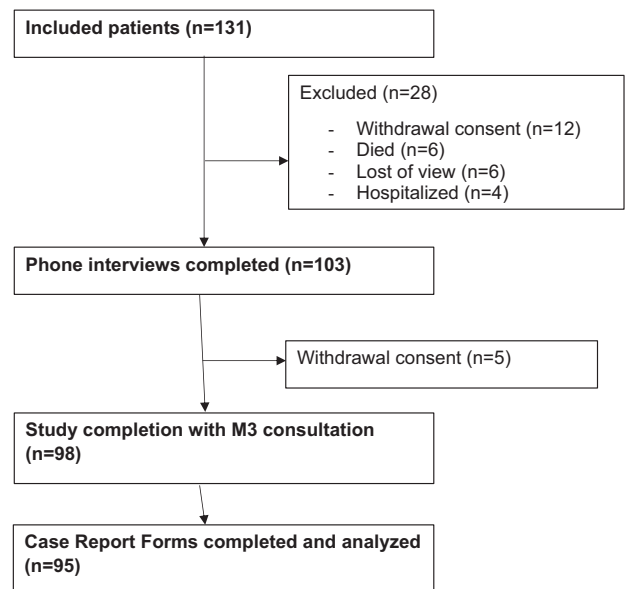
**Table 3**
Social, medical and geriatric characteristics at inclusion (*n* = 131).

| | N = 131 | (%) |
|---|---|---|
| **Sex** | | |
| Women | 81 | (61.8%) |
| Men | 50 | (38.2%) |
| **Age** | 81 | [70–95] |
| **Live alone** | 48 | (36.6%) |
| **Family caregiver** (*n* = 130) | 89 | (68.5%) |
| **Education degree** | | |
| 0 | 24 | (19.7%) |
| 1 | 59 | (48.4%) |
| 2 | 21 | (17.2%) |
| 3 | 18 | (14.8%) |
| **Cancer type** | | |
| Solid tumor | 129 | (98.5%) |
| Metastatic | 53 | (40.5%) |
| Hematological malignancies | 2 | (1.5%) |
| **Performance Status/4** | | |
| 0 | 10 | (7.7%) |
| 1 | 69 | (53.1%) |
| 2 | 37 | (28.5%) |
| 3 | 14 | (10.8%) |
| **ADL/6** | | |
| score = 6 | 80 | (61.1%) |
| score <6 | 51 | (38.9%) |
| **Mini IADL/4** | | |
| score = 0 | 75 | (57.3%) |
| score >0 | 56 | (42.7%) |
| **Fall in previous year** | | |
| Yes | 39 | (29.8%) |
| No | 92 | (70.2%) |
| **Pain (numeric or verbal scale)** | | |
| Yes | 77 | (58.8%) |
| No | 54 | (41.2%) |
| **Geriatric Depression Scale** | | |
| Score <5/15 | 98 | (83.1%) |
| Score ≥5/15 | 20 | (16.9%) |
| **Cognitive status (MMSE/30)** | 28 | [18–30] |
| **Comorbidity CIRS-G** | | |
| total | 9 | [0–28] |
| Patient with at least one CIRS-G ≥3 | 56 | (42,7%) |
| **Polypharmacy** | | |
| number of medications | 6 | [0–18] |
| **Nutritionnal status** | | |
| IMC | 26,8 | [16.6–39] |
| **MNA >11/14** | | |
| Yes | 53 | (41.1%) |
| No | 76 | (58.9%) |
| No malnutrition | 28 | (21,4%) |
| At risk | 58 | (44,3%) |
| Low malnutrition | 14 | (10,7%) |
| Moderate malnutrition | 26 | (19,8%) |
| Severe malnutrition | 5 | (3,8%) |
| **SIOG group** | | |
| Fit | 27 | (20.8%) |
| Vulnerable | 55 | (42.3%) |
| Frail | 48 | (36.9%) |

Education degree: 0 = Below elementary school, 1 = elementary school, 2 = middle school, 3 = high school.
ADL is normal if = 6/6.
Mini IADL is normal = 0/4, include telephone, transportation, medication, finances activities).
No pain was considered if numeric scale = 0/10 or verbal scale = 0/4CIRS: Comorbidity is considered severe if = 3.
or very severe if = 4.
Severe malnutrition was considered if IMC < 18, weight loss ≥15% in 6 months or ≥ 10% in one month and/or albuminemia < 30 g/l (with normal CRP).
Moderate malnutrition was considered if IMC < 21, weight loss ≥10% in 6 months or ≥ 5% in one month, albuminemia < 35 g/l (with normal CRP) and/or MNA ≤ 17/30.
Low malnutrition was considered if IMC < 23, weight loss <10% in 6 months or <5% in one month, and/or albuminemia < 38 g/l (with normal CRP).
Patients were considered at risk for malnutrition if MNA < 24/30.
No malnutrition was considered in case of IMC ≥ 23, no weight loss, albuminemia ≥ 38 g/l and MNA ≥ 24/30.
SIOG group: FIT if comorbidity CIRS-G < 3/4, normal status for any geriatric assessment; VULNERABLE if abnormal status for IADL, only 1 severe comorbidity, normal or at risk for malnutrition and/or normal ADL; FRAIL if several severe comorbidities, abnormal status for ADL, moderate or severe malnutrition.

**Table 4**
Patient's characteristics influencing phone questionnaire feasibility (*n* = 131).

| Response to phone questionnaire | No (*n* = 28) | | Yes (*n* = 103) | | *p* |
|---|---|---|---|---|---|
| Age (years) | 81,5 | [75–95] | 80 | [70–93] | 0,017 |
| **SIOG subgroup** | *n* | % | *n* | % | 0,17 |
| Fit | 3 | (11.1%) | 24 | (23.3%) | |
| Vulnerable | 10 | (37%) | 45 | (43.7%) | |
| Frail | 14 | (51.9%) | 34 | (33%) | |
| **MMSE < 28/30** | | | | | 0,024 |
| Yes | 24 | (85.7%) | 65 | (63.1%) | |
| No | 4 | (14.3%) | 38 | (36.9%) | |
| **Gender** | | | | | 0,094 |
| Male | 15 | (53.6%) | 35 | (34%) | |
| Female | 13 | (46.4%) | 68 | (66%) | |
| **Educational level** | | | | | |
| Below Elementary school | 9 | (34.6%) | 15 | (15.6%) | 0,093 |
| Elementary school | 10 | (38.5%) | 49 | (51%) | |
| Middle school | 2 | (7.7%) | 19 | (19.8%) | |
| High school and above | 5 | (19.2%) | 13 | (13.5%) | |
| **Family caregiver** | | | | | 0,54 |
| Yes | 21 | (75%) | 68 | (66.7%) | |
| No | 7 | (25%) | 34 | (33.3%) | |

rate at 21.7%) and for mini IADL-item (except « transportation » disagreement rate at 25%).

Better concordance Cohen's Kappa coefficients were not found in normal cognitive subgroup (MMSE ≥28/30) versus abnormal subgroup, unless for « dressing » ADL-item, in addition to « medications » IADL item. Same disagreement rates were measured as in the whole study population.

There was also disagreement in number of medications. We haven't collected the exact list of medications name, so even in case of concordance in the quantity, maybe some could have been removed and others added.

### 3.4. Geriatric decline

Among 131 included patients, 78.6% (*n* = 103) have benefited from an oncological treatment: chemotherapy (*n* = 65), radiotherapy (*n* = 32), hormone therapy (*n* = 17), surgery (*n* = 29).

Geriatric decline has been measured for the 95 patients who had completed the study. In fact, one hundred of patients came to the

**Table 5**
Concordance and disagreement rate for each geriatric assessment domain between nurse phone call and geriatrician consultation (*n* = 95).

| | Cohen's Kappa coefficient | 95% IC | % disagree | 95% IC |
|---|---|---|---|---|
| **ADL** | | | | |
| Bathing | 0,72 | 0.55–0.90 | 13,7 | 8.2–22 |
| Dressing | 0,72 | 0.57–0.86 | **7,4** | 3.6–14.4 |
| Toileting | 0,51 | 0.25–0.78 | **6,3** | 2.9–13.1 |
| Transfering | 0,57 | 0.47–0.67 | 18,9 | 12.3–28.0 |
| Continence | 0,32 | 0.18–0.45 | 23,2 | 15.8–32.6 |
| Feeding | 0,52 | 0.29–0.76 | **7,4** | 3.6–14.4 |
| **IADL** | | | | |
| Telephone | 0,31 | 0–0.64 | **4,2** | 1.6–10.3 |
| Transportation | 0,52 | 0.41–0.64 | 23,4 | 16.0–32.9 |
| Medications | **0,89** | 0.82–0.97 | **3,2** | 1.1–8.9 |
| Finances | 0,46 | 0.28–0.63 | 11,6 | 6.6–19.5 |
| Weight loss | 0,47 | 0.34–0.6 | 23,6 | 16.0–33.4 |
| Number of medications | | | 42,9 | |
| Fall | 0,4 | 0.26–0.54 | 20,2 | 13.3–29.4 |
| Balance trouble | 0,25 | 0.11–0.39 | 37,3 | 27.7–48.1 |
| Depression | 0,14 | 0–0.28 | 32,2 | 23.6–42.3 |
| Memory loss | 0,18 | 0.05–0.32 | 35,1 | 26.2–45.2 |
| Orientation | 0,31 | 0.17–0.45 | 22,6 | 15.3–32.1 |
| Pain | 0,26 | 0–0.55 | 23,1 | 11.0–42.1 |

physician follow-up consultation but some had not answered to the nurse phone interview. Some patients could not have a complete examination because of fatigue.

Geriatric decline has been compared between SIOG subgroups in Table 6 (SIOG1 $n = 24$, SIOG2 $n = 39$, SIOG3 $n = 32$). Only six patients in SIOG1, eight in SIOG2, and two in SIOG3 subgroup, have not declined in any domain. The only significant decline concerns Uni Podal Test, with 19% patients declining in SIOG1 subgroup, 24.2% in SIOG2 subgroup, 52.2% in SIOG3 subgroup ($p = .038$). That may explain the increasing fall occurrence within the last three months, between frailty subgroups (SIOG1 $n = 0$, SIOG2 $n = 4$, SIOG3 $n = 5$), but sample size is too small for being significant ($p = .14$).

## 4. Discussion

This is the first study intending to validate a nurse phone follow-up geriatric questionnaire in oncology. We have included unselected aged patients with cancer, including frail ones. Geriatric decline may explain the difficulty for some patients to complete the study. This observation was expected and we anticipated it when we designed the study, by majoring the sample size to enroll to reach the required number of assessable patients. We should have reduced the time interval before the second evaluation, in order to detect the decline earlier.

There are several limitations in our study. On the subject of phone characteristics, the number of questions was accurate, within an appropriate median duration of call, according to the nurse. We regret not to have answered patient's satisfaction regarding the easiness to understand and answer the different questions, and the time for answering. Some patients may require further time expressing personal or health worries.

Concordance analysis with Cohen's kappa coefficient was not the accurate statistical choice because distribution within different options answers was not well balanced. Furthermore, we decided to analyze disagreement rates.

We misunderstand why some ADL and IADL items have high disagreement rates. We could impeach the different way of interviewing between professional: nurse by phone and geriatrician in consultation. But in neurology, in younger adult patients with sclerosis, the Expanded Disability Status Scale realized by nurse phone call compared with the neurologist's consultation had a good level agreement, only significant in the most dependents patients [19]. It is easier to find concordance in very fit or very dependent patients, but much more difficult to rate intermediate status.

Our external nurse investigator did not meet the included patients previously to the phone interview, avoiding answers subjective interpretation bias. But the lack of confidence between patients and the nurse might have influenced the answers' reliability [20]. That does not seem to be the case in fit patients in whom concordance is more often found, compared to frail ones, who may not dare complaining about their difficulties or maybe prefer hiding them. In some domains, they declare more frailty to nurse by phone, but sometimes more to the physician in consultation. Physicians found 58 patients with normal ADL at 6/6, but nurses found only 46 normal patients, whereas it is similar for mini IADL. In

**Table 6**
Geriatric decline between M3 versus M0 geriatrician assessment consultations in each evaluation domains ($n = 95$).

|  | Fit SIOG1 subgroup | ($n = 24$) | Vulnerable SIOG2 subgroup | ($n = 39$) | Frail SIOG3 subgroup | ($n = 32$) | $p$ |
|---|---|---|---|---|---|---|---|
| ADL | $n$ | (%) | $n$ | (%) | $n$ | (%) | 0,59 |
| Yes | 3 | (12.5%) | 5 | (12.8%) | 7 | (21.9%) |  |
| No | 21 | (87.5%) | 34 | (87.2%) | 25 | (78.1%) |  |
| IADL |  |  |  |  |  |  | 0,41 |
| Yes | 7 | (29.2%) | 9 | (23.1%) | 12 | (37.5%) |  |
| No | 17 | (70.8%) | 305 | (76.9%) | 20 | (62.5%) |  |
| PS |  |  |  |  |  |  | 0,87 |
| Yes | 10 | (41.7%) | 17 | (43.6%) | 12 | (37.5%) |  |
| No | 14 | (58.3%) | 22 | (56.4%) | 20 | (62.5%) |  |
| BMI |  |  |  |  |  |  | 0,86 |
| Yes | 7 | (29.2%) | 14 | (35.9%) | 11 | (34.4%) |  |
| No | 17 | (70.8%) | 25 | (64.1%) | 21 | (65.6%) |  |
| GDS-15 |  |  |  |  |  |  | 0,3 |
| Yes | 3 | (13%) | 5 | (12.8%) | 8 | (26.7%) |  |
| No | 20 | (87%) | 34 | (87.2%) | 22 | (73.3%) |  |
| TUG |  |  |  |  |  |  | 0,1 |
| Yes | 0 | (0%) | 3 | (7.9%) | 4 | (83.3%) |  |
| No | 23 | (100%) | 35 | (92.1%) | 20 | (16.7%) |  |
| **UPT** |  |  |  |  |  |  | **0,038** |
| Yes | 4 | (19%) | 8 | (24.2%) | 12 | (52.2%) |  |
| No | 17 | (81%) | 25 | (75.8%) | 11 | (47.8%) |  |
| Orientation |  |  |  |  |  |  | 0,5 |
| Yes | 3 | (12.5%) | 2 | (5.3%) | 4 | (12.5%) |  |
| No | 21 | (87.5%) | 36 | (94.7%) | 28 | (87.5%) |  |
| Memory |  |  |  |  |  |  | 0.88 |
| Yes | 2 | (8.3%) | 2 | (5.3%) | 2 | (6.2%) |  |
| Nn | 22 | (91.7%) | 36 | (94.7%) | 30 | (93.8%) |  |
| Fall |  |  |  |  |  |  | 0,14 |
| Yes | 0 | (0%) | 4 | (10.5%) | 5 | (15.6%) |  |
| No | 24 | (100%) | 34 | (89.5%) | 27 | (84.4%) |  |
| Comorbidity |  |  |  |  |  |  | 0,71 |
| Yes | 11 | (45.8%) | 19 | (48.7%) | 18 | (56.2%) |  |
| No | 13 | (54.2%) | 20 | (51.3%) | 14 | (43.8%) |  |
| Any Decline[a] |  |  |  |  |  |  | 0,11 |
| Yes | 18 | (75%) | 31 | (79.5%) | 30 | (93.8%) |  |
| No | 6 | (25%) | 8 | (20.5%) | 2 | (6.2%) |  |

[a] Decline if at least one decline criteria present.

**Table 7**
Comparison of evaluation methods used by phone and consultation.

| Domains | Nurse phone | Geriatrician consultation |
|---------|-------------|---------------------------|
| Dependance | Self-reported | Self-reported |
| Nutritionnal Status | Declared (number) | Measured |
| Medications | Declared (number) | Medication review |
| Falls | Declared (yes/no) | Declared (yes/no) |
| Balance impairment | Self-reported | Performance based |
| Depression | Self-reported (1 yes/no question) | Self-reported (15 yes-no questions) |
| Orientation | Performance based | Performance based |
| Memory | Self-reported | Performance based |
| Pain | Self-reported | Self-reported |

contrast, 25 patients declared to the physician having fallen in previous three months, but only 14 to the nurse.

The use of different investigation methods in collecting data may certainly explain the lack of concordance: some use auto evaluation, other criteria are measured or quantified by performance tests. We present Table 7 the different evaluation methods used between phone and consultation. Nevertheless, even in domains with identical evaluation methods (dependence, falls, orientation and pain), better concordance nor lower disagreement are not found.

Cognitive status did not impact on concordance, but maybe those who had lower MMSE scores were assisted by a caregiver.

Concerning cognitive evaluation, lower scores are found by phone than in consultation, with Blessed Orientation-Memory-Concentration Test, the hearing loss may be involved. Face to face interviews enable also to integrate nonverbal communication [21]. The Modified Telephone-Administered Minnesota Cognitive Acuity Screen seems to be relevant, with a 97% sensibility and specificity, detecting Mild Cognitive Impairment, confirmed secondly with neuropsychological tests [22]. The TICSm is validated in several countries, and in lower socioeducative population [23], predicting cognitive troubles better than MMSE [24]. It could be interesting to validate this tool in older French population. The duration of this evaluation remains too long to be integrated in a geriatric phone follow-up, and several different calls for each domain would be necessary to limit fatigue.

Regarding psychological suffering screening, Distress Thermometer is validated by phone, except in French older patients [25]. Beside oncological field, an American randomized study in older people (mean age 74.2 yrs), have found concordance in anxiety and depression symptoms screening (with Mini-International Neuropsychiatric Interview, Mental health questionnaire Short Form-12, and the Patient Health Questionnaire-9), collected either by phone or at home interview by case-managers [22].

Relating to the three months balance performance decline, it would justify physical and balance rehabilitation intervention program (not only councils), in addition to usual nutritional ones. The Stepping-On program experimented in United States in geriatric oncology seems promising [26].

There is a French nurse phone follow-up experience in geriatric oncology during chemotherapy focusing on outcomes early detection, providing also supportive recommendations. Patients or their caregiver are weekly called, almost if they haven't called themselves the direct line, from Monday to Friday. They often report fatigue (27.5%), treatment managing problems (18%), balance troubles and falls (11%), and feeding troubles (10.5%) [27].. The reliability of subjective complaints concerning balance and nutritional needs to be checked. It would be interesting to compare the feasibility of phone follow-up despite potential cultural habits in different regions of France.

Exhaustive data concerning PROs (Patient Reported Outcomes) due to cancer treatment can be collected. Adaptations in older population have to be evaluated. In three trials King-Kallimanis has only found small differences in PRO functional domains between patients older than 70 and younger ones with lung cancer undergoing immunotherapy [28]. Nevertheless, some several common clinician-reported symptomatic AEs were not assessed by the PRO, nor geriatric syndromes. PRO measurements were based on EORTC QLQ-C30 (European Organization for Research and Treatment of Cancer Quality of Life Questionnaire), EORTC Lung-Cancer13, and Lung Cancer Symptoms Scale, and not the QLQ-ELD14 for patients over 70 years. These old patients included in research studies have been selected (only ECOG PS 0 and 1). In real life, in older patients not using internet, a PRO paper questionnaire with accurate filling instructions could be delivered to the patients at the end of the first geriatric assessment, avoiding potentially misunderstood questions by phone.

When older patients with cancer often come to hospital for oncological treatment, geriatric assessment should be integrated in the follow-up [29]. Otherwise, in case of oral therapy and after surgery, different at home follow-up methods can be considered: telemonitoring system with connected objects and teleassistance [30–32] sometimes completed with nurse phone intervention [33], or providing alternate nurse phone call and at home visits [34]. Use of interactive platform don't seem to be applicable to the whole aged population yet [35]. These interventions require patient's cooperation and consent abilities, and also cost-effectiveness evaluation.

In conclusion, further research studies are needed to find the accurate way following-up older patients with cancer, depending on their frailty degree, choosing either phone, at home visits, which frequency is to evaluate, or constant monitoring. Its impact on treatment tolerance, quality of life and treatment completion are objectives to be pursued.

### Author contribution

Conception: P. LE BON, H. SOLEM-LAVIEC, B. BEAUPLET, JM GRELLARD, B CLARISSE.
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### Declaration of competing interest

None to declare.

**Appendix**

The CSHA-CFS TV (English translation)

I am going to ask you regarding your activities of daily living. Please let me know if you need help from others to complete the listed tasks?

| Function | 1-No | 2-Yes | |
|---|---|---|---|
| Eating | 1☐ | 2☐ | ADL(1) |
| Dressing | 1☐ | 2☐ | ADL(2) |
| Transferring | 1☐ | 2☐ | ADL(3) |
| Toileting | 1☐ | 2☐ | ADL(4) |
| Bathing | 1☐ | 2☐ | ADL(5) |

If ADL(1)-(5) all answered Yes， assign frailty category 7 and stop.

| | | | |
|---|---|---|---|
| Shopping | 1☐ | 2☐ | IADL(1) |
| Taking medications | 1☐ | 2☐ | IADL(2) |
| Using telephone | 1☐ | 2☐ | IADL(3) |
| Financing | 1☐ | 2☐ | IADL(4) |
| Transportation | 1☐ | 2☐ | IADL(5) |
| Preparing meals | 1☐ | 2☐ | IADL(6) |
| Doing light house works | 1☐ | 2☐ | IADL(7) |
| Doing laundry | 1☐ | 2☐ | IADL(8) |

If at least one IADL item answered Yes， and at least one ADL item answered Yes， assign frailty cat. 6 and stop.

If all IADL item answered No， and at least one ADL item answered Yes， assign frailty cat. 6 and stop.

If at least one IADL item answered Yes， and all ADL item answered No， assign frailty cat. 5 and stop.

If all ADL items and all IADL items answered No, move to the next question.

Did you feel slow down recently ?    1☐    2☐    02
       Yes: assign frailty cat. 4 and stop.

Do you have any chronic disease under treatment ?
       1☐    2☐    03(1)
       Yes: move to question number 03(2)
       No: move to question number 04

Do those chronic diseases controlled well ?
       1☐    2☐    03(2)

If 03(1) answered Yes， and 03(2) answered No, assign frailty cat. 4 and stop.

If both 03(1) and (2) answered Yes: assign frailty cat. 3 and stop.

If both answered No, move to the next question.

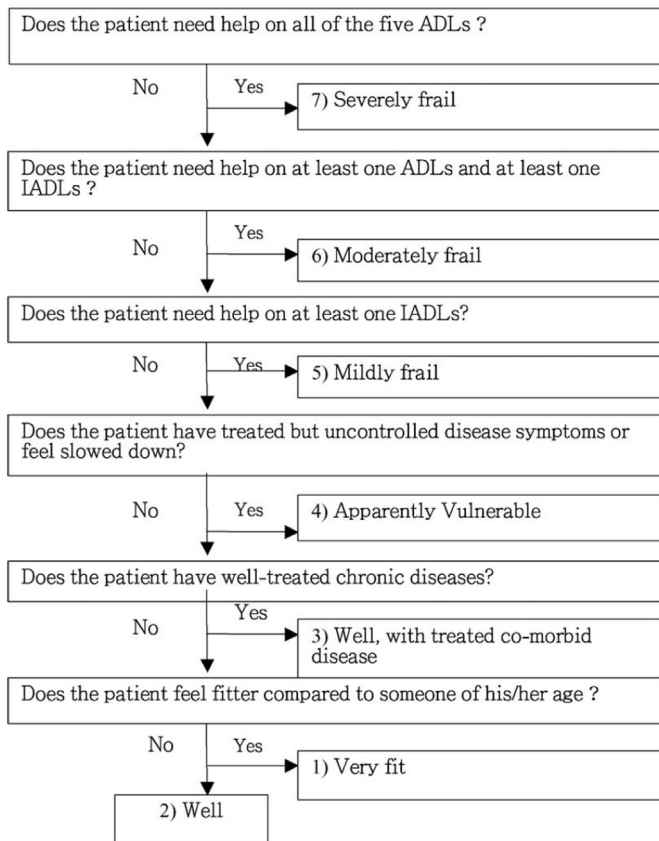Do you think that you are fitter compared to someone of your age ?
       1☐    2☐    04
       No: assign frailty cat. 2 and stop.
       Yes: assign frailty cat. 1 and stop.

Frailty category        ☐    05

The CSHA-CFS PV (English translation)



```
Does the patient need help on all of the five ADLs ?
   No        Yes → 7) Severely frail

Does the patient need help on at least one ADLs and at least one
IADLs ?
   No        Yes → 6) Moderately frail

Does the patient need help on at least one IADLs?
   No        Yes → 5) Mildly frail

Does the patient have treated but uncontrolled disease symptoms or
feel slowed down?
   No        Yes → 4) Apparently Vulnerable

Does the patient have well-treated chronic diseases?
   No        Yes → 3) Well, with treated co-morbid disease

Does the patient feel fitter compared to someone of his/her age ?
   No        Yes → 1) Very fit

            2) Well
```

¹ ADLs: eating, dressing, transferring, toileting, and bathing
² IADLs: shopping, taking medications, using telephone, financing, transportation, preparing meals, doing light house chores, and doing laundry

Physician signature:                     Frailty Category

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