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Title

Including older patients in cancer trials: a qualitative study of collaboration between geriatricians and oncologists

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Abstract

Background

The under-representation of older patients in cancer trials remains an important obstacle to the generation of data on efficacy and safety in this growing patient population. In France, geriatric oncology coordination units (UCOGs) have been created to help oncologists and geriatricians work together on research, best practice, and continuing medical education. Taking these units as a case study, this paper sheds light on the collaboration between geriatricians and oncologists in the inclusion process of older patients in cancer trials.

Materials and Methods

Empirical data were gathered in a series of sociological interviews with all 16 oncologists, geriatricians and unit coordinators in the five UCOGs in the greater Paris region of France.

Results

The case of French geriatric oncology coordination units shows the gap between professional research cultures in oncology and geriatrics that may account for the low observed inclusion rates. It is easier to include patients in randomized clinical trials than in observational studies. UCOGs have the potential to improve research in geriatric oncology by catalyzing the development and implementation of effective collaboration tools (such as frailty assessments). The units also have the potential to promote Phase IV trials and observational research that are suitable for older patients with cancer.

Discussion

Bridging the cultural gap between oncologists (the dominant force in setting the cancer research agenda) and geriatricians (a source of specific knowledge and know-how) is essential for producing relevant trial protocols that match the specific yet diverse features of older patient populations.

Keywords

Cancer; clinical trials; inclusion

Key Points

Insufficient evidence due to under-representation of older patients with cancer in trials

Collaboration between oncologists and geriatrician needed for observational studies on older patients with cancer

Culture gap between oncologists and geriatricians is an obstacle to collaboration in practice and trial inclusion.

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Declaration of competing interest

None reported.

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1 Introduction

In Europe and the United States, most patients with cancer are over the age of 65. In France, in 2017, 62.4 % of cancers diagnosed were in patients over the age of 64, and 11.5 % of cancers diagnosed were in patients over the age of 84 [1]. Paradoxically, older patients are under-represented in clinical trials. This under-representation has been extensively studied in the United States and the United Kingdom in recent years[2–6]. This situation is problematic from an ethical point of view[7–9] since evidence-based guidelines are lacking[10]. It also highlights age-related inequalities in access to randomized controlled trials (RCTs) and (potentially) in treatment options for a large proportion of patients with cancer.

Age has not been a major inclusion criterion in cancer RCTs for over a decade, allowing older patients to participate in the production of evidence-based data on efficacy and safety in cancer care and treatment. However, older patients are still under-represented in cancer clinical trials[11,12]. In recent years, many studies have focused on identifying reasons for their under-representation in clinical trials; possible factors include the effect of comorbidities and functional status on treatment tolerability[13–16], race, age and sex[17]. Representations

of both trial investigators[18,19] and patients[20] on participation to clinical research have also been examined. For example, oncologists' beliefs in and awareness of clinical trials[21] and the time constraints incurred by the trial (e.g. extra paperwork[22]) reportedly have played a role in lower inclusion rates.

Geriatricians are key players in the care and assessment of older candidates for inclusion in cancer trials. However, our knowledge about geriatricians' perceptions of barriers to the inclusion of older patients with cancer in clinical trials is limited. More specifically, little is known about how geriatricians and oncologists collaborate in the trial inclusion process. The objective of the present study was to fill this knowledge gap.

Since 2011, the French National Cancer Institute has funded the creation of 24 dedicated geriatric oncology coordination networks (*Unités de coordination et antennes d'oncogériatrie*, UCOGs) in hospitals across France. The UCOGs' mission is to improve care for older patients with cancer, stimulate geriatric oncology research, and promote clinical trials with older patients. To the best of our knowledge, this unique organizational network does not exist in Western Europe nor the United States. In this specific institutional context, we hypothesized that analyzing and comparing the points of view of oncologists and geriatricians who cooperate in these networks would shed light on obstacles and possible solutions to research problems. By studying the case of UCOGs in the greater Paris region, we sought to determine whether the under-inclusion of older patients in cancer clinical trials also results from a gap between the two professional research cultures of oncology and geriatrics.

2 Materials and methods

2.1 Study Population: UCOGs

UCOGs aim to coordinate the efforts of oncologists and geriatricians to provide better care for patients with cancer over the age of 70[23]. The five UCOGs of the greater Paris region operate in relatively similar ways. The networks provide a framework for local collaborative

decision-making between oncologists and geriatricians, in order to better adapt standard treatments for use with older patients with cancer. The UCOGs' creation was prompted by the lack of data on the impact of standard cancer regimens in older patients. It complicates decision-making because practitioners cannot rely on specific guidelines. More specifically, physicians are faced with two sets of recurring practical questions about when and how to treat an older patient presenting with cancer. The first set relates to the decision of whether to offer specific treatment or palliative care, depending on the patient's health status, frailty and risk of deterioration. The second set relates to adapting the chosen treatment to the patient's level of frailty (e.g. dose reduction). In both sets of situations, practitioners are faced with assessing risk-benefit ratios without the assistance of standardized practice guidelines.

Collaboration is promoted through scientific dialog (e.g. seminars), continuing medical education (e.g. university degrees in geriatric oncology), and clinical cooperation (e.g. dedicated multidisciplinary team meetings). Collaboration in clinical practice is then implemented on a voluntary basis by practitioners, most often in the form of referrals and consultation. The structure of UCOGs allows for geriatric expertise to be heard and recognized in decisions about cancer treatments - notably in terms of diagnosis, prevention, and care for frail patients[24]. More importantly, UCOGs seek to stimulate research in geriatric oncology by supporting and coordinating a network of oncologists and geriatricians.

2.2 Data Collection

Data was collected through qualitative semi-structured interviews using comprehensive sampling, i.e. with all 10 unit coordinators of the 5 UCOGs of the greater Paris area, plus 6 ex-coordinators of the same UCOGs (Table1). The interviews were conducted by two social scientists with expertise in the sociology of health and illness. The 7 female interviewees and 9 male interviewees (age range: 40 to 64) practiced in public-sector teaching hospitals or private clinics as geriatricians, medical oncologists or radiation oncologists. Interview guides

were developed by consensus among investigators to include the following topics: professional background, clinical practice with older patients with cancer, experience and representations of cancer trials, and collaboration with oncologists/geriatricians. All the interviewees gave their informed consent to the audio-recording and transcription of the interviews. Interviews were then translated from French by one of the social scientists.

Table 1 – Characteristics of interviewees

	Onco-geriatrics coordination unit	Specialty	Years of clinical practice with older patients	Years of experience in cancer clinical research	Sex (M: male ; F : female)	Age
1.	UCOG 1	Oncologist and geriatrician	11-15 years	5-10 years	M	40 years old - 60 years old
2.	UCOG 2	Geriatrician	>15 years	11-15 years	F	40 years old - 60 years old
3.	UCOG 2	Oncologist and geriatrician	>15 years	>15 years	F	40 years old - 60 years old
4.	UCOG 3	Oncologist	>15 years	>10 years	M	40 years old - 60 years old
5.	UCOG 3	Geriatrician	11-15 years	5-10 years	M	<40 years old
6.	UCOG 3	Geriatrician	11-15 years	5-10 years	F	40 years old - 60 years old
7.	UCOG 3	Oncologist	5-10 years	5-10 years	F	40 years old - 60 years old
8.	UCOG 3	Geriatrician	11-15 years	>10 years	M	40 years old - 60 years old
9.	UCOG 3	Geriatrician	11-15 years	5-10 years	F	40 years old - 60 years old
10.	UCOG 3	Geriatrician	>15 years	>15 years	F	>60 years old
11.	UCOG 4	Geriatrician	5-10 years	5-10 years	F	<40 years old
12.	UCOG 4	Oncologist	>15 years	>15 years	M	>60 years old
13.	UCOG 4	Oncologist	>15 years	>15 years	M	>60 years old
14.	UCOG 4	Oncologist	>15 years	11-15 years	F	>60 years old
15.	UCOG 5	Geriatrician	5-10 years	< 5 years	M	40 years old - 60 years old
16.	UCOG 5	Oncologist	>15 years	>15 years	M	>60 years old

2.3 Analysis

The transcripts were thematically analyzed by applying a grounded theory-based sociological method, which involves using inductive reasoning to systematically code fragments of data by theme, categorize them and elaborate concepts[25]. The two social scientists theorized the results in a dialectical, iterative manner, in order to highlight the social representations underlying (i) the physicians' discourse on their research practices, (ii) the interactions between two different research cultures (oncology and geriatrics), and (iii) the effects of these interactions and discourse on their practices of inclusion of older patients in cancer trials.

2.4 Ethics

The study protocol was approved by the institutional review board at the Henri Mondor Hospital (Créteil, France; reference: 00011558). All participants provided informed verbal consent to being interviewed and recorded.

3 Results

Our results showed that (1) although the two professional research cultures of oncologists and geriatricians are very different, (2) within UCOGs, practitioners manage to find common ground in research practices. However, there is room for improvement in the level and quality of collaboration.

3.1 Diverging Research Cultures

Medical culture is defined as the set of scientific knowledge, techniques, notions about health and disease and basic philosophy of nature that physicians adhere to at work [26]. In the field of research in geriatric oncology, as we show below, the cultures of oncologists and geriatricians often diverge but both groups agreed that comorbidities made older patients less eligible for inclusion in RCTs. The oncologists and geriatricians regretted that even though age is no longer a non-inclusion criterion, most trials do not include their older patients with cancer and other diseases [SupplementaryMaterial1].

3.1.1 Consensus on the Willingness to Participate in Clinical Research

Despite the evidence of under-representation of eligible older patients, our interview data showed a consensus among practitioners with regard to the general willingness of older adults to participate to medical research.

“Honestly, I don’t think there’s any reluctance” “Those [the patients] who are in favor, they say: ‘We don’t understand anything anyway. Doctors are right. We trust you, doctor.’ ”

(Oncologist, UCOG4)

[SupplementaryMaterial2]

3.1.2 Chronological age, an imperfect criterion for inclusion

Practitioners also agreed including patients according to age produces groups of varying degrees of fitness and autonomy.

“In trials, the limit is usually set at 65 years of age, for reasons of statistical population homogeneity. Currently, it does not make much sense. At 65, you have people who are very deconditioned and at 65 you have people who are in perfect general condition. This milestone doesn't make a lot of clinical sense. Statistically perhaps it makes sense, because of the homogeneity of the population. But in the clinical sense it doesn't make much sense. (...) It tends to disappear. »

(Oncologist, joint coordinator of UCOG 4)

“There's a difference between the older subject and the geriatric subject. The older subject is a question of chronological age, 80 years old for instance. The geriatric subject has a certain age, not 40, but a certain age, let's say over 75 years old, and in addition there are other problems that make them a complex

patient. For me, that's the difference (...) It's the difference between chronological age and physiological age
(Geriatrician 2, UCOG 3)

When it is defined by age, the heterogeneity of the older population hinders the elaboration of clinical standards through clinical trials.

3.1.3 Differing Views on the Relevance of Protocols for Older Patients

Our data also highlighted another source of under-representation: cultural differences between specialists in oncology and geriatrics, i.e., differences in training, discourse, practices and ways of relating to medical knowledge.

Oncology and geriatrics have differing research cultures. From the geriatricians' perspective, oncologists are not sufficiently aware of specific characteristics of older patients. Cancer research protocols are seldom adapted to older patients' needs and limitations (e.g. RCTs on ovarian cancer) [SupplementaryMaterial3].

Given that geriatricians tend to care for a patient's health problems and their effects on quality of life, they sometimes opposed inclusion in a trial if the instigated treatment was not suited to the patients' care or living conditions. The geriatricians considered that specificities other than the older patient's medical status should be more often taken into account. Furthermore, they resent some oncologists' reluctance to carry out trials dedicated to older patients:

"We set up one trial dedicated to older patients but it was very difficult to get going. It was about chemotherapy and depression, but in reality, the oncologists weren't pushing the protocol to their patients. The idea was to detect depression within the first six months of chemotherapy. But according to the protocol, it was up to the oncologist to suggest participation to the patient. (...) I don't think that it was the optimal way to set it up. So for the moment the project is done, done,

done. It's ready to restart - we even created the online data collection tool and everything - but hasn't started because there are no inclusions."

(Geriatrician, joint coordinator of UCOG2)

3.1.4 Perceived Ageism among some Oncologists

Some geriatricians considered that oncologists' poor knowledge of and generalizations about older patients can hinder inclusion of this population in trials - even though oncologists are mostly committed to including older patients.

"I think it comes from the oncologist's culture, which assumes: "Oh well he's old, we're not going to bother him with that anyway." It's due to ignorance and faulty personal and professional cultures. I reckon that older oncologists and younger oncologists do not view older patients in the same way (...) I think it's to do with the culture."

(Geriatrician, joint coordinator of UCOG 2)

Interviewer: "We observe that older patients are still underrepresented. Why is that?"

Oncologist: It's due to the physicians' and families' perceptions of the value of including older patients in therapeutic trials.

Interviewer: What do you mean by physicians' perceptions?"

Oncologist: Well, 'He's an older person, I'm not going to impose that on him. (...)

Overall, it is true that physicians are reluctant to include patients in therapeutic trials when they are old. Then the families are reluctant too; the patient's old, she's tired, you shouldn't bother her."

(Oncologist, joint coordinator of UCOG4) ([SupplementaryMaterial4])

Clinical specificities of older patients and the heterogeneity of the population tend not to be as well-known or valued in the professional culture of oncologists, outside of UCOGs. When

faced with an age-specific need, they tend to refer an older patient with cancer to a geriatrician; but these referrals are often skipped due to delays and short-staffing in hospital. Given that generalizations can become arguments in medical decision-making, prejudice against older patients and their ability to withstand the demands of a trial protocol lower inclusion rates.

3.1.5 Geriatricians' Skepticism about RCTs

Although the geriatricians had misgivings about some oncologists' practices and failure to invite older patients to participate in a cancer trial, they also admitted to lacking belief in the benefits of RCTs for older patients. Given that (i) geriatricians tend to reason at the individual level (rather than the population level) and (ii) RCTs are not a focus during training in geriatrics, these physicians expressed a lack of confidence in the principle of the clinical trial for older, frailer patients.

Geriatric oncologist: "I don't think you can have too much compassion when it comes to suggesting participation in a clinical trial of one treatment versus another. You really need to believe strongly in the clinical trial to want to suggest it, and then you also sometimes have to overcome a certain degree of reluctance by the patient. You really have to be convinced of the value of the study - that's the most difficult thing.

Interviewer: Even though a study often advances knowledge?

Geriatric oncologist: Yes, but it's at the level of thousands of individuals, not at the individual level. And I find that in geriatrics... I work on the individual level. But also because in my training I didn't get this culture of clinical trials, so that contributes to my own reluctance. Even though I know that older patients should be included in clinical trials, and even though I know that they are under-

represented, there aren't many clinical trials about which I think 'I really want him to participate in this trial'."

(Geriatric oncologist, UCOG3)

This excerpt shows that differences in professional culture between collaborating physicians may be an obstacle to inclusion. This is particularly visible with regard to relationship to time in clinical practice.

3.1.5 Time and Timing

The cultural difference between oncology and geriatrics was best exemplified by attitudes to time and time management. In oncology, trial inclusion is quick:

"What we see these days is that trials are international, and the recruitment goes very fast. Compared with a few years ago, recruitment will now only be open for three or four months. So this time pressure drives the inclusion of patients who are in great overall shape, with no comorbidities, etc. They may be easier to include than someone who needs to go through geriatric assessment, etc. (...) Speed doesn't really fit with geriatric medicine."

(Oncologist, UCOG3)

Geriatrician: "On the other hand, doing dedicated trials with older patients is important for gaining precise knowledge about adjusting treatments and checking toxicity; these factors will eventually be more important, and they will differ from those of younger subjects. But yes, it is more difficult. It's more difficult because it's more time-consuming - everything goes more slowly for an older patient. You can just see some of them walking in the corridor; they have a cane and they are walking slower than you or I. And also, because they have more health problems. With a 40-year-old guy: are you being treated for high blood pressure? No. Have

you ever had a heart attack? No. No, no, no, etc. We keep our questions short and the answers ultra-short.”

(Geriatrician 1, UCOG3)

The contrast with geriatrics is clear:

“Geriatrics is ‘slow medicine’, it takes a little time. (...) consultations drag on a bit. We don’t tell the patient: ‘undress, sit down, lie down, go, go, go’. And then there’s the history, there is always a story there. Taking the patient’s history sometimes... There’s a lot to go through. (...) Oncologists aren’t in this type of time frame, because they are faced with a huge demand. A cancer at 85 is not the same as cancer at 40.”

(Oncologist, UCOG3)

[SupplementaryMaterial5]

Both geriatricians and oncologists perceived these differences in how time is used and shared:

“The main role [of geriatricians] is to provide support and ensure that treatments that appear to be valuable are administered safely; e.g. preparing patients for chemo or another procedure, allowing us to anticipate side effects, managing the adverse events associated with treatments. (...) Geriatricians must make an effort to contribute something that is appropriate, rather than doing consultations that take an hour and a half. I mean, if they keep thinking this is how they can help, it’ll never be useful. Clinging on to extremely theoretical things is not OK. Geriatricians must understand that being involved does not systematically mean that they need an hour and a half.”

(Oncologist, joint coordinator of UCOG3)

Collaboration between specialists requires a mutual understanding of how times is managed and how the physician relates to patients, as well as mutual acknowledgment of skills and value in care provision. In cancer care, oncology remains the dominant specialty. By promoting networking and clinical and scientific dialog, UCOGs provide a framework for oncologists and geriatricians to better understand each other's specialties and cultures - thereby contributing to the recognition of how geriatric medicine contributes to cancer care.

3.2 Are UCOGs valuable organizational tools for fostering research and promoting the inclusion of older patients?

3.2.1 Cohorts of Older Patients with Cancer

Although the inclusion of older patients in cancer RCTs is still difficult, UCOGs have been successful in facilitating cohort studies of the impact of geriatric assessment on cancer care.

“I developed a prospective observational cohort - a little like what is being done with the ELCAPA cohort[27]. The idea was to include all patients of age 65 and over, who were referred to us for geriatric oncology evaluation (...) We now have an active cohort of 800 patients.”

(Geriatrician, UCOG5)

“In UCOGs, they do a lot of prospective cohort studies, like case series, but research is still quite limited, honestly.”

(Oncologist, joint coordinator of UCOG3)

UCOGs have yet to develop cohort studies and clinical trials that extend beyond geriatric assessment. “Research trials stemming from one or several UCOGs include observational studies (e.g. the multicentric prospective non-pharmacological study of ELderly CANcer PATients (ELCAPA, NCT02884375, UCOG 5)[28–31] ; the prospective observational cohort non-pharmacological study on the Determinants of Quality Of Life in AGEd Cancer Patients

(DEQOLAGE, NCT02672657, UCOGs 1 and 5)); and randomized clinical trials (e.g. Comprehensive Geriatric Assessment and Head and Neck Elderly Cancer Patients non-pharmacological trial (EGÉSOR, NCT02025062, UCOGs 1, 3 and 4)[32]; non-pharmacological Trial Involving Subjects Over 70 Years of Age With Non Small-cell Lung Cancer of Stage IV and Comparing a "Classical" Strategy of Treatment Allocation, With an "Optimized" Strategy Allocating the Same Treatments (ESOGIA, NCT01257139, UCOG 3))[33]. UCOGs can carry out pharmacological trials, but they are most often headed by larger cooperative groups (*groupe coopérateur en oncologie*), such as the GERICO group for clinical research on older patients.” Our data suggest two strategic fields of inquiry that may foster research in geriatric oncology.

3.2.2 Fostering Geriatric Oncology Research (1): Creating Tools that Effectively Reduce Inclusion Time

Creating tools to accelerate inclusion might reduce the time discrepancy between the two medical cultures. Oncology consultations are short and very busy, so oncologists need to present trials and include patients fast. Geriatricians need time to broadly assess the patient’s health and well-being. Both specialties agree on the need for a less time-consuming inclusion tool that takes older patients’ specificities into account.

“In clinical trials [the geriatricians] must clearly identify the parameters that are important for us. When we do the Mini dataset for example, what’s the take away? What is essential? If they come to us and say: ‘there are 7 important items, 7 sections, and there are 5 possibilities for the 5th section.’, we tell them ‘Start again and come back when there’s only one possibility because having so many is useless.’ I’m exaggerating but we can’t move forward like that.

Geriatricians have an extreme notion of patients’ individuality, and they suffer from their specialty’s isolation or an absence of acknowledgment. Perhaps that

makes them cling to the idea that if they were given more time, they would do better. In those cases, the oncologist doesn't try his best, he only does what is in his interest, and he doesn't take the time. We then vilify both stances. But everyone must be proactive, in a constructive way, and reasonable. Otherwise it doesn't work."

(Oncologist, joint coordinator of UCOG 3)

Some geriatricians resist the pressure to accelerate geriatric assessment, whereas others try to come up with new markers (such as gait speed).

"I reckon gait speed would be a good marker for promoting the inclusion of patients in geriatric oncology trials. We now know that a slow walker (less than 1 m/s) is predictive of a poor prognosis (...) So why not use gait speed as the only factor for patient inclusion?"

(Geriatrician, UCOG5)

Hybrid tools such as gait speed applied to oncology or the Mini dataset are intended to form a compromise between the respective principles and priorities in oncology and geriatrics, and thereby addressing differences in working within, and on, the time and timing gap between the two medical cultures. UCOGs bring the two specialties closer together and thus catalyze dialog and innovation.

3.2.3 Fostering Geriatric Oncology Research (2): Pharmacokinetics

According to several interviewees, specifically studying the pharmacokinetics of cancer drugs in older patients could boost research and help to set down appropriate guidelines for care in older patients. Given that most conventional cancer drugs were developed a long time ago, pharmaceutical companies have become less interested - leaving academic pharmacology trials within organizations like UCOGs as one of the better options.

“The clinical trial comes from a very oncological vision. The idea is to have tools to predict the toxicity or failure of chemotherapy (...). We need more pharmacokinetic knowledge. There are almost no data on the pharmacokinetics of conventional cancer drugs in malnourished or frail subjects, there is almost nothing. In any case, we need academic trials because all these drugs have been on the market for so long that none of the companies cares about them anymore.”

(Oncologist, joint coordinator of UCOG5)

However, UCOGs have yet to prove their ability to design and set up this type of study. Some oncologists consider that geriatric oncology research could be more effectively fostered by sponsoring more observational studies, rather than resource-heavy RCTs. Phase IV trials might generate new knowledge about tolerance and toxicity, and form the basis for guidelines on adapting dose levels for older patients and on reducing side effects.

Oncologist: “We would like to set up more pragmatic trials, phase IV trials and especially pharmacokinetic studies because in recent years so many oral drugs have obtained a marketing authorization with doses that are the same for all ages. Last year, we published the results of a cohort study showing that with the same dose level, older subjects were three times more exposed – actually, the concentration was three times higher - than in subjects under 70 years old.

Toxicity is what counts with older subjects; they are more overexposed, they have more side effects, and so quality of life isn't good. They have a hard time starting a new drug if they didn't tolerate the last one. It's important to find the right dose right from the start.

So what we see from the studies is that overall there is enough data on efficacy at appropriate doses, but not enough on tolerance. We need data to be able to reassure the oncologist by saying: ‘Even if I don't do 800, if I only do 600, I will

be as effective because ultimately, the patient will be properly exposed to the drug'. (...)

We need pharmacokinetic data because of the problem of drug interactions. These are participants who will typically be taking more drugs than a young participant. So, with pharmacokinetics, we can see that if there is an interaction, it may increase or decrease the effectiveness of the study drug. Pharmacokinetics can give us an idea whether the patient is well, under-exposed or over-exposed to the drug.

What's been shown (but not only in older subjects) is that a concentration above the range was predictive of toxicity in the month following the dose. For example, it has been shown for Tarceva and lung cancer in older patients that [over-exposure] is predictive of treatment discontinuation for toxicity."

(Oncologist, UCOG3)

3.2.4 Evaluating and Validating Tools in Geriatric Oncology

UCOGs are institutional networks for promoting research and creating a common culture around care and clinical practice. The UCOG staff encourage the use of and research on geriatric screening tools (such as the G8) in older patients with cancer who may benefit from a referral to UCOG for anti-cancer decision-making and/or follow-up[34]. According to the practitioners, one of UCOGs' main achievements is the implementation of clinical trials designed to validate geriatric oncology tools (such as the Mini dataset)[35].

4 Discussion

The present case study of UCOGs in the greater Paris region shows that (i) low inclusion of older patients in cancer clinical trials stems from a gap between the opposing research cultures in oncology and geriatrics, (ii) common ground can nevertheless be found within UCOGs, although (iii) there is still potential for improving collaboration. Bridging this gap

will require practitioners to look beyond the chronological age of older patients when determining trial inclusion, and consider time and timing issues in their collaboration.

Our results highlighted a paradox in the practitioners' discourse on geriatric oncology research. On one hand, there is a consensus among practitioners that data and evidence from RCTs is needed to deliver better, standardized care. On the other hand, the practitioners also agreed that the heterogeneity of the older population hinders the elaboration of these standards. This heterogeneity stems from the fact that older patients are being defined by their age - a normative chronological marker [36]. An age threshold creates a patient group with varying degrees of fitness, autonomy, social ties, and histories. As interviewees reported this type of group is not helpful clinically because these factors affect treatment tolerance and efficacy.

In France, only oncologists can include patient in RCTs. Trials that are considered to be less of a priority (from a clinical oncology point of view) are more difficult to carry out – thus widening the cultural gap between oncology and geriatrics. As oncologists tend to recruit across all age groups for several trials concurrently, they might be less pro-active for trials outside their field, that do not test drugs, or that have more restrictive criteria (such as age).

The case of UCOGs shows that academic, collaborative, interdisciplinary and observational research has the greatest potential for innovation in geriatric oncology. We believe that bridging the cultural gap between oncologists (the dominant force in setting the cancer research agenda) and geriatricians (a source of specific knowledge and know-how) is key to producing relevant protocols that fit with the varied, specific features of older patients. Some potential measures include considering further funding and broader cooperation between hospitals.

Our findings have several implications for practice (Table 2). We recommend (i) better funding and promotion of UCOGs, (ii) raising geriatricians' awareness of ongoing trials, to

increase the inclusion of older patients, sensitize oncologists to ageism, and promote the use of alternative inclusion criteria to age, such as comorbidities and functional status; (iii) promoting Phase IV trials and “real-life” observational studies in older patients (to gain knowledge of dose effects, for example); and (iv) designing RCTs that are better suited to frail older patients with cancer (e.g. less home-hospital commuting, or longer consultation slots). To raise levels of motivation and inclusion rates, clinical research must address questions that fit into oncologists’ framework and their interests, while featuring trial designs that incorporate the results of geriatric assessments.

Table 2 – Themes, obstacles and potential solutions

Themes	Challenges to overcome	Potential solutions
Age as an imperfect inclusion criterion	Including patients according to age produces groups of varying degrees of fitness and autonomy	Further promoting inclusion through age AND alternative and complementary indices, such as gait speed, performance status and comorbidities as inclusion criteria
Belief in RCT benefits for the patient	Geriatricians lacking belief in the benefits of RCTs for older patients leads to lower trial inclusion	Increasing communication and information to geriatricians about trial protocols, so as to tailor geriatrician recommendations
Ageism	Misconceptions about older patients leads to underestimations of fitness and tolerance to cancer treatments	Sensitize physicians to ageism
Time and timing differences	Lack of mutual understanding of differences in time management between geriatricians and oncologists	Promoting networking and clinical and scientific dialog to increase as mutual acknowledgment of skills and value in care provision
Lack of data on older patients with cancer	Lack of data on cancer treatments in older patients, toxicity in particular, leads to clinical...	Facilitating cohort studies beyond geriatric assessment; specifically studying the pharmacokinetics of cancer drugs in older patients could boost research and help to set down appropriate guidelines for care in older patients
Inclusion time	Time-consuming inclusion protocols reduces inclusion of older patients	Hiring clinical trials technicians dedicated to older participants, in order to assist oncologists in time-consuming inclusion consultations

5 Conclusion

The present study sheds light on how geriatricians and oncologists collaborate during the inclusion process of older patients in cancer trials. The case of French UCOGs shows the relevance of the gap between research cultures in oncology and geriatrics in understanding low inclusion. This gap is mainly due to (i) differing opinions on the relevance of protocols for older patients, (ii) perceived ageism among some oncologists, (iii) skepticism about the value of RCTs among some geriatricians, and (iv) different temporalities in oncology and geriatrics. UCOGs have the potential to foster geriatric oncology research by catalyzing the creation of effective collaborative tools (such as frailty assessments) and bridging the cultural gap between specialties.

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Conflicts of interest

The authors declare no conflict of interest

Author contributions to the manuscript

Meoïn Hagège, PhD contributed to collecting the data, analyzed the data and wrote the paper

Florence Canoui-Poitaine, MD PhD planned the study and contributed to discussing and revising the manuscript

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