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RESEARCH PAPER

Goals of care discussions and treatment limitation decisions in European acute geriatric units: a one-day cross-sectional study

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Abstract

Background: It is important to pursue goal-concordant care and to prevent non-beneficial interventions in older people.
Aim: To describe serious illness communication and decision-making practices in hospitalised older people in Europe.
Setting/participants: Data on advance directives, goals of care (GOC) discussions and treatment limitation decisions were collected about patients aged 75-years and older admitted to 23 European acute geriatric units (AGUs).
Results: In this cohort of 590 older persons [59.5% aged 85 and above, 59.3% female, median premorbid Clinical Frailty Score (CFS) 6], a formal advance directive was recorded in 3.3% and a pre-hospital treatment limitation in 14.0% with significant differences between European regions (respectively $P < 0.001$ and $P = 0.018$). Most prevalent GOC was preservation of function (46.8%). GOC were discussed with patients in 64.0%, with families in 73.0%, within the interprofessional hospital team in 67.0% and with primary care in 13.4%. The GOC and the extent to which it was discussed differed between European regions (both $P < 0.001$). The prevalence of treatment limitation decisions was 53.7% with a large difference within and between countries ($P < 0.001$). The odds of having a treatment limitation decision were higher for patients with pre-hospital treatment limitation decisions (OR 39.1), residing in Western versus Southern Europe (OR 4.8), belonging to an older age category (OR 3.2), living with a higher number of severe comorbidities (OR 2.2) and higher premorbid CFS (OR 1.3).
Conclusions: There is large variability across European AGUs concerning GOC discussions and treatment limitation decisions. Sharing of information between primary and hospital care about patient preferences is noticeably deficient.

Keywords: aged; 80 and over; acute hospital; patient care planning; resuscitation orders; multicentre study; older people

Key Points

- This is the first multicentre study across Europe about goals of care discussions and treatment limitation in acute geriatric units.
- Formal advance directives were present in <5% of older people admitted to European acute geriatric units.
- Treatment limitation decisions increased from 14% pre-hospital to >50% in the acute geriatric unit.
- This study showed large variability in goals of care discussion and treatment limitation decisions between European regions, countries and acute geriatric units.
- Sharing information about patient preferences between acute geriatric units and primary care needs improvement.

Introduction

For patients at the end of life, focusing on symptom control and optimising functionality and quality of life may be a better approach to care than focusing on life prolongation [1]. In high-income countries, more than half of all deaths occur in hospital, although home is the preferred place of care and death for the majority of older people [1]. Most patients want to avoid highly medicalised deaths [1–3]. The report of the Lancet Commission on the Value of Death described that excessive focus on clinical interventions at the end of life deprives families and friends of the opportunity to support patients during death and dying and increases suffering [4].

Serious illness communication and decision-making is important to prevent non-wanted and non-beneficial medical interventions [5, 6]. Whereas advance care planning is a process in which patients share their personal values and preferences regarding future medical care before a health crisis [5], goals of care (GOC) discussions intend to align real-time treatment decisions with patients' values and priorities in a current specific context [5, 6] such as an acute geriatric unit (AGU) admission. AGUs are hospital wards where interprofessional teams treat older patients admitted with frailty and an acute health crisis (such as acute infections, falls, acute cardiovascular events or mental/behavioural problems) based on comprehensive geriatric assessment. In order to pursue goal-concordant care, it is widely recommended that patients and families are provided with clear information about their condition and health status. Information should also include uncertainties, potential benefits, risks and harms of interventions in potentially life-limiting illness facilitating more informed decisions when admitted to hospital [3, 4]. However serious illness communication and decision-making practices vary widely between countries, hospitals and wards as reported in intensive care units [7–9]. This illustrates the complexity of serious illness communication and decision-making in which individual preferences, social contexts and health systems vary.

Little is known about serious illness communication and decision-making in older patients in the AGU. To the best of our knowledge, there are only a few single-centre studies concerning prevalence of advance directives and treatment limitation decisions [10–13] and only one multicentre but single-country study [14] in older people admitted to the acute hospital. The European Geriatric Medicine Society Special Interest Group Palliative Care (EuGMS SIG-PC) aimed to fill in this void with a multi-country multi-centre observational study. The primary objective was to examine and compare serious illness communication and decision-making practices in older patients treated by geriatricians in Europe. More specifically, the research questions were as follows: (i) How prevalent are pre-hospital advance directives and treatment limitation decisions before hospitalisation on European AGUs? (ii) Are GOC discussed with patients, families, interprofessional hospital team and primary care? (iii) How prevalent are treatment limitation decisions during AGU hospitalisation and what are the associated factors? (iv) Do practices as described in (i) (ii) (iii) differ between European regions and/or countries?

Methods

Design

This was a one-day cross-sectional international multicentre study of serious illness communication and decision-making practices in patients of 75 years and older who are admitted to the acute hospital and who are (co)treated by a geriatrician or internist with special qualification in geriatric medicine.

National coordinators were recruited from the Special Interest Group Palliative Care within the EuGMS and were expected to recruit local investigators in their country, obtain Ethics Committee approval, and assist the local investigators in their data collection and quality tasks. We included 23 acute geriatric units in 11 countries and four European regions [Northern (Norway), Western (Austria, Belgium, Luxembourg, Switzerland and The Netherlands), Eastern (Czech Republic and Poland) and Southern/Mediterranean European region (Portugal, Spain and Türkiye)] (see Appendix 1 in the Supplementary Data section for the number of AGUs per region and per country).

Outcomes and instruments

On 16 June 2023, local investigators (who were the treating geriatricians) recorded data by means of an electronic case report form (see Appendix 2). For each patient under their care on the day of the study, serious illness communication and decision-making practices before (pre-hospital advance

directives documents and pre-hospital treatment limitation decisions documents) and during (GOC discussions as reported by the treating physician and treatment limitation decision documents) hospitalisation were collected.

An advance directive was defined as a legal document that states a person's living will and/or appointment of a surrogate decision-maker. Aside from that, there are other formal but non legal advance care planning documents such as ReSPECT [15] or treatment escalation plans which were not routinely used in the included countries and AGUs, thus not included in this study.

GOC were predefined in categories as extension of life ('length of life is all that matters'), preservation of function ('functionality is what matters most'), reducing symptoms of pain or other complaints ('being comfortable is all that matters').

A treatment limitation decision was defined as a written order specifying the intensity of treatment and grouped into four subcategories: (i) no Cardio-Pulmonary Resuscitation (CPR) only; (ii) no CPR and no intubation [other Intensive Care Unit (ICU) treatment possible]; (iii) no ICU treatment, only ward based medical treatment; (iv) no life prolongation and focus on comfort care. No written treatment limitation order together with a written 'full code' (or formal order of no treatment limitation) were categorised as 'no treatment limitation decision'.

Other collected variables: length of stay before the study, age category, gender, reason for hospital admission, moderate to severe comorbidity, preadmission residence, premorbid frailty using Clinical Frailty Scale [16]. The CFS was scored by the geriatrician. The CFS ranks frailty from 1 (very fit) to 9 (terminally ill).

Statistics

We computed descriptive statistics and Chi Square test or independent-samples Kruskal-Wallis Test for association between patient characteristics, GOC discussions and treatment limitation decisions and European region using IBM SPSS Statistics software version 28 (IBM Corp., Armonk, NY, USA). The exact *P*-values are reported, with statistical significance defined as $P \leq 0.05$.

In order to identify factors related to the presence of a treatment limitation decision in the AGU, a logistic regression model including all patient characteristics (see Table 1) was performed with stepwise removing variables non-significantly associated.

Ethics

This study was approved by the Ethics Committees of all participating centres. Informed consent was required in Austria, Türkiye and 1 of the Spanish hospitals. Informed consent was waived in the other centres because of the retrospective and non-interventional nature of the study. The treating geriatricians reviewed their medical files and delivered the pseudonymised data through a secure web application REDCap [17]. Data were centralised in Ghent University Hospital, Belgium (registration number BC-07858). The key is held only by the treating geriatrician, not by the principal investigator.

To ensure anonymity for the patients as well as the participating AGUs, it was required that results are shown per European region.

Results

In total, we included 590 patients. Table 1 summarises patient characteristics. Most older patients were admitted to the AGU because of an acute infection, falls and/or fractures or cardiovascular pathology. Almost 60% were aged 85 and above; 59% were female and 85% resided at home versus 15% in residential care such as a nursing home. Most common severe comorbidities were heart failure (30%) and moderate to severe dementia (20%). The median premorbid CFS was six, inter quartile range (IQR) [5–7], with 77% of patients having CFS of five or higher and 32% CFS of seven or higher. Overall, patient characteristics were similar when comparing European regions, however patients admitted in Eastern European countries were younger and had a higher prevalence of severe cardiac and renal comorbidities whereas patients recruited in Northern Europe had less prevalence of serious comorbidities (Table 1).

Prehospital advance directives and treatment limitation decisions

A formal advance directive was recorded before hospitalisation in 3.3% of the patients (6.3% in Western Europe, 1.6% in Southern Europe and 0% in Eastern and Northern European countries, $P < 0.001$). This concerned mostly a living will alone or in combination with a surrogate decision-maker appointment (Table 2). Other formal or non-legally binding advance care planning documents were not routinely used in countries included in the study.

In 14.0% (82/586) a pre-hospital admission treatment limitation was known, of which 9.8% was set in an earlier hospital admission (57/586), 2.2% (13/586) in home care, 2.0% (12/586) in residential care. The prevalence of pre-hospital treatment limitation decisions differed between European regions, 24.6% in Northern Europe, 15.3% in Western Europe, 11.1% in Eastern Europe and 10.1% in Southern Europe ($P = 0.018$) (Table 2).

Goals of care discussions in the AGU

The type of GOC and the extent to which it was discussed with the involved parties differed between European regions (Table 3) and between countries (data not shown). GOC were unknown in 11.4%. Of the remaining 509 cases (88.6%), the most prevalent GOC was preservation of function (238/509, 46.8%), followed by comfort in 31.2% (159/509) and life extension in 22.0% (112/509). GOC were discussed in 64% with patients, in 73% with families, in 67% within the interprofessional hospital team and in

Table 1. Patient characteristics (N = 590) and comparison between European regions.

	Total	Western Europe	Northern Europe	Eastern Europe	Southern Europe	*P*-value
Length of stay before cross-sectional study						
< 72 h	160/580 (27.6%)	47/250 (18.8%)	31/59 (52.5%)	21/81 (25.9%)	61/190 (32.1%)	<0.001
Between 3 and 7 days	175/580 (30.2%)	77/250 (30.8%)	20/59 (33.9%)	17/81 (21.0%)	61/190 (32.1%)	
More than 1 week	245/580 (42.2%)	126/250 (50.4%)	8/59 (13.6%)	43/81 (53.1%)	68/190 (35.8%)	
Reason for hospital admission (multiple reasons possible)						
Infection	222/590 (37.6%)	83/257 (32.3%)	20/61 (32.8%)	56/81 (69.1%)	63/191 (33.0%)	<0.001
Falls and/or fracture	165/590 (28.0%)	73/257 (28.4%)	16/61 (26.2%)	19/81 (23.5%)	57/191 (29.8%)	0.737
Cardiovascular	134/590 (22.7%)	49/257 (19.1%)	12/61 (19.7%)	29/81 (35.8%)	44/191 (23.0%)	0.017
Mental or behavioural problems	74/590 (12.5%)	31/257 (12.1%)	18/61 (29.5%)	16/81 (19.8%)	9/191 (4.7%)	<0.001
Malignancy	41/590 (6.9%)	16/257 (6.2%)	3/61 (4.9%)	7/81 (8.6%)	15/191 (7.9%)	0.754
Stroke or ischaemic attack	34/590 (5.8%)	12/257 (4.7%)	7/61 (11.5%)	5/81 (6.2%)	10/191 (5.2%)	0.226
Age category						<0.001
75–79	96/585 (16.4%)	42/253 (16.6%)	14/61 (23.0%)	24/81 (29.6%)	16/190 (8.4%)	
80–84	141/585 (24.1%)	69/253 (27.3%)	18/61 (29.5%)	20/81 (24.7%)	34/190 (17.9%)	
85–89	167/585 (28.5%)	75/253 (29.6%)	13/61 (21.3%)	19/81 (23.5%)	60/190 (31.6%)	
90+	181/585 (31.0%)	67/253 (26.5%)	16/61 (26.2%)	18/81 (22.2%)	80/190 (42.1%)	
Gender (female)	345/282 (59.3%)	143/251 (57.0%)	34/60 (56.7%)	47/81 (58.0%)	121/190 (63.7%)	0.512
Residing at home before hospitalisation	489/575 (85.0%)	209/246 (85.0%)	53/61 (86.9%)	61/78 (78.2%)	166/190 (87.4%)	<0.001
Moderate to severe comorbidities (multiple possible)						
Heart failure (NYHA III or IV)	181/590 (30.7%)	78/257 (30.4%)	6/61 (9.8%)	54/81 (66.7%)	43/191 (22.5)	<0.001
Dementia (GDS 6 or 7)	123/590 (20.8%)	51/257 (19.8%)	5/61 (8.2%)	24/81 (29.6%)	43/191 (22.5%)	0.017
Renal failure (stage 4 or 5)	77/590 (13.1%)	22/257 (8.6%)	5/61 (8.2%)	23/81 (28.4%)	27/191 (14.1%)	<0.001
Pulmonary failure (GOLD III or IV)	59/590 (10.0%)	23/257 (8.9%)	5/61 (8.2%)	13/81 (16.0%)	18/191 (9.4%)	0.273
Uncontrolled (haematological) cancer	59/590 (10.0%)	20/257 (7.8%)	5/61 (8.2%)	13/81 (16.0%)	21/191 (11.0%)	0.163
Median number of moderate to severe comorbidities (IQR)	1 (0–1)	1 (0–1)	0 (0–1)	2 (1–2)	1 (0–1)	<0.001
Median Premorbid CFS (IQR)	6 (5–7)	6 (5–7)	6 (4–6)	5 (5–7)	6 (5–7)	0.011

Abbreviations: NYHA, New York Heart Association; GOLD, Global Initiative for Chronic Obstructive Lung Disease; GDS, Global Deterioration Scale; CI, confidence interval; GDS 6 = largely unaware of recent experiences and events in their lives, require assistance with basic ADLs; GDS 7 = verbal abilities will be lost over the course of this stage, incontinent, needs assistance with feeding, lose ability to walk; IQR, inter quartile range; CFS, Clinical Frailty Scale (Rockwood); Uncontrolled cancer = disease progression or recurrence); *P*-value Chi Square for categorical/independent-samples Kruskal-Wallis Test for continuous median number of comorbidities and premorbid CFS.

13.4% with primary care (Table 3). In Eastern European AGUs life extension was more often the prevailing GOC and was more often discussed with patients compared to the other European regions.

Treatment limitation decision during AGU hospitalisation

In total, 53.7% had a formal treatment limitation decision during their stay on European AGUs. The prevalence of treatment limitation decisions differed significantly between European regions (Table 2): occurring in 71.3% in Western, 44.3% in Northern, 40.5% in Southern and 38.3% in Eastern Europe ($P < 0.001$). We also registered a significant difference between hospitals, within and between European regions ($P < 0.001$) (Figure 1). Three hospitals did not have any patient with a treatment limitation decision and were located in the Southern Europe/Mediterranean region. Two hospitals had formal treatment limitation decisions in all patients, also in the Southern Europe/Mediterranean region (Figure 1). Subcategories of treatment limitation can be found in detail in Table 2. In Southern Europe almost half of all patients did not have a written order, reflecting legal policy in Türkiye in which treatment limitation decisions are legally not allowed. In Northern and Eastern Europe half of the patients had a written full code.

In constructing the logistic regression model, we stepwise removed following variables: residence, moderate to severe renal failure, gender, uncontrolled cancer, moderate to severe pulmonary disease, moderate to severe dementia, length of stay, moderate to severe heart failure. In the final model; the odds of having a treatment limitation decision was significantly higher in patients with pre-hospital treatment limitation decision (OR 39.1), Western versus Southern Europe (OR 4.8), higher age category (OR 3.2 for 85–89 and 3.4 for 90+ when compared to 75–79), higher number of severe comorbidities (OR 2.2), and higher premorbid CFS (OR 1.3) (Table 4). There was no statistical difference between Southern versus Northern or Eastern Europe.

In patients with CFS of 7 and more, 69.6% had a treatment limitation decision, which differed as follows between the regions: 100% in Northern, 83.0% in Western, 58.6% in Eastern and 50.0% in Southern European/Mediterranean region ($P < 0.001$).

Table 2. Prevalence of advance directives and treatment limitation decisions and comparison between European regions.

	Total	Western Europe	Northern Europe	Eastern Europe	Southern Europe	*P*-value
Pre-hospital advance directives	**19/584 (3.3%)**	**16/254 (6.3%)**	**0/61 (0%)**	**0/81 (0%)**	**3/188 (1.6%)**	**<0.001**
A living will	14/585 (2.4%)	11/254 (4.3%)	0%	0%	3/188 (1.6%)	
Appointment of surrogate	1/585 (0.2%)	1/254 (0.4%)	0%	0%	0%	
Both living will and appointment of surrogate	4/585 (0.7%)	4/254 (1.6%)	0%	0%	0%	
Pre-hospital treatment limitation decision						**0.018**
Treatment limitation decision	**82/586 (14.0%)**	**39/255 (15.3%)**	**15/61 (24.6%)**	**9/81 (11.1%)**	**19/189 (10.0%)**	
No CPR only	10/586 (1.8%)	9/255 (3.5%)	1/61 (1.6%)	0%	0%	
No CPR and no intubation	30/586 (5.1%)	9/255 (3.5%)	13/61 (21.4%)	4/81 (4.9%)	4/189 (2.1%)	
No ICU treatment, only ward based treatment	33/586 (5.6%)	18/255 (7.1%)	1/61 (1.6%)	4/81 (4.9%)	10/189 (5.3%)	
No life prolongation, focus on comfort care only	9/586 (1.5%)	3/255 (1.2%)	0%	1/81 (1.3%)	5/189 (2.6%)	
No treatment limitation decision	**504/586 (86.0%)**	**216/255 (84.7%)**	**46/61 (75.4%)**	**72/81 (88.9%)**	**170/189 (90.0%)**	
No written order	500/586 (85.3%)	212/255 (83.1%)	46/61 (75.4%)	72/81 (88.9%)	170/189 (90.0%)	
Written full code	4/586 (0.7%)	4/255	0%	0%	0%	
AGU treatment limitation decision						**<0.001**
Treatment limitation decision	**309/574 (53.7%)**	**176/247 (71.3%)**	**27/61 (44.3%)**	**31/81 (38.3%)**	**75/185 (40.5%)**	
No CPR only	26/574 (4.5%)	24/247 (9.7%)	1/61 (1.6%)	0%	1/185 (0.5%)	
No CPR and no intubation	93/574 (16.2%)	51/247 (20.6%)	23/61 (37.7%)	14/81 (17.3%)	5/185 (2.7%)	
No ICU treatment, only ward based treatment	125/574 (21.7%)	64/247 (25.9%)	3/61 (4.9%)	12/81 (14.8%)	46/185 (24.9%)	
No life prolongation, focus on comfort care only	65/574 (11.3%)	37/247 (15.0%)	0%	5/81 (6.2%)	23/185 (12.4%)	
No treatment limitation decision	**265/574 (46.3%)**	**71/247 (28.7%)**	**34/61 (55.7%)**	**50/81 (61.7%)**	**110/185 (59.5%)**	
No written order	154/574 (27.0%)	48/247 (19.4%)	5/61 (8.2%)	12/81 (14.8%)	89/185 (48.1%)	
Written full code	111/574 (19.3%)	23/247 (9.3%)	29/61 (47.5%)	38/81 (46.9%)	21/185 (11.4%)	

Legend: Bold values refer to overall results (pre-hospital advance directives, pre-hospital treatment limitation decision and AGU treatment limitation decision), non-bold are subcategories. *P*-value Chi Square.

Table 3. Goals of care discussions during hospitalisation as reported by the treating physician: Comparison between European countries.

	Total	Western Europe	Northern Europe	Eastern Europe	Southern Europe	*P*-value
Goals of care						<0.001
Extension of life (length of life is all that matters)	112/575 (19.5%)	59/245 (24.1%)	8/61 (13.1%)	35/80 (43.8%)	10/189 (5.3%)	
Preservation of function (functionality is all that matters)	238/575 (41.4%)	112/245 (45.7%)	32/61 (52.5%)	22/80 (27.5%)	72/189 (38.1%)	
Reducing symptoms of pain or other complaints (comfort)	159/575 (27.7%)	56/245 (22.9%)	5/61 (8.2%)	23/80 (28.7%)	75/189 (39.7%)	
Unknown	66/575 (11.4%)	18/245 (7.3%)	16/61 (26.2%)	0/80 (0.0%)	32/189 (16.9%)	
Goals of care discussed with						
Communicative patient	318/497 (64.0%)	154/206 (74.8%)	26/57 (45.6%)	60/67 (89.6%)	78/167 (46.7%)	<0.001
Family who is present	359/541 (73.0%)	126/216 (58.3%)	27/57 (47.4%)	69/81 (85.2%)	137/187 (73.3%)	<0.001
Interprofessional hospital team	384/573 (67.0%)	159/246 (64.6%)	40/61 (65.6%)	74/79 (93.7%)	111/187 (59.4%)	<0.001
Primary care[a]	77/575 (13.4%)	43/245 (17.6%)	12/61 (19.7%)	2/80 (2.5%)	20/189 (10.6%)	<0.001

P-value Chi Square; AGU = acute geriatric unit. [a]Primary care includes home care and institutional care (such as nursing home, care home, residential care, rehabilitation centre).

Discussion

To our knowledge, this is the first large-scale multicentre study in Europe on serious illness communication and decision-making in older hospitalised patients. Included patients in the cohort are very similar to other studies conducted in AGUs: 60% was aged 85 and higher, with a median CFS of 6 and 32% living with severe frailty (CFS seven or higher).

This study indicates a lack of advance care planning documents available on admission to the AGU with only 3.3% formal advance directives and 4.2% pre-hospital treatment limitation decisions documents from primary (including nursing home) care, although widely recommended in this population with high risk of functional decline, hospitalisation and mortality [1, 18, 19]. This is a known phenomenon throughout the world [20] and the most frequently

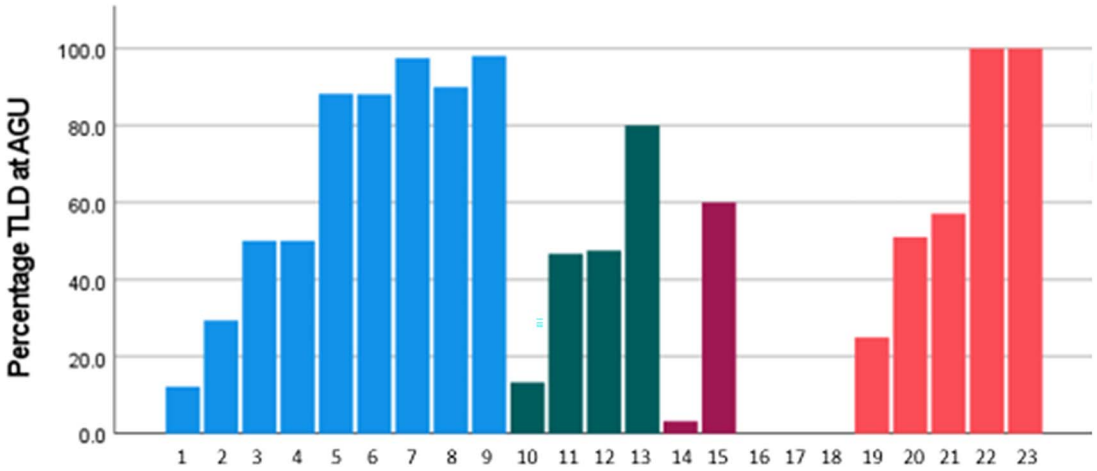

Figure 1. Prevalence of patients with a treatment limitation decision per AGU (n = 23) Legend: AGU number 1 to 9 (in light blue) are from the Western Europe region, AGU number 10 to 13 (in green) are from the Northern Europe region, AGU number 14 and 15 (in purple) are from the Eastern Europe region, AGU number 16 to 23 (in pink) are from the Southern Europe and Mediterranean region. Abbreviation: AGU = acute geriatric unit, TLD = treatment limitation decision.

Table 4. Logistic regression for treatment limitation present at AGU.

Variables	B	S.E.	Wald	df	*P*-value	OR	95%CI around OR
European region			51.631	3	<.001		
Western versus Southern	1.572	.254	38.450	1	<.001	4.817	2.931–7.918
Northern versus Southern	.390	.394	.981	1	.322	1.477	0.682–3.198
Eastern versus Southern	−.474	.366	1.674	1	.196	.623	0.304–1.276
Age category of patient			22.554	3	<.001		
80–84 versus 75–79	.223	.351	.404	1	.525	1.250	0.628–2.490
85–89 versus 75–79	1.169	.343	11.623	1	<.001	3.217	1.643–6.299
90+ versus 75–79	1.233	.342	13.034	1	<.001	3.432	1.757–6.704
Premorbid Clinical Frailty Scale	.261	.073	12.736	1	<.001	1.298	1.125–1.498
Number of moderate or severe comorbidities	.778	.160	23.593	1	<.001	2.177	1.590–2.979
Formal treatment limitation decision before hospitalisation yes versus no	3.666	.621	34.901	1	<.001	39.087	11.584–131.891
Constant	−3.733	.535	48.773	1	<.001	.024	

Variable(s) entered and consequently removed because *P*-value >0.05: residence, moderate to severe renal failure, gender, uncontrolled cancer, moderate to severe pulmonary disease, moderate to severe dementia, length of stay, moderate to severe heart failure. In the final model the included variables are: European region, Age category of patient, Number of moderate or severe comorbidities, Formal treatment limitation decision before hospitalisation. Nagelkerke R Square is 0.454.

mentioned reasons behind the lack of advance care planning are a default tendency to provide high-intensity treatment at the end of life [21–25], low acceptance of early palliative care in society [4, 16] and lack of communication skills amongst clinicians to conduct advance care planning conversations [18, 24]. Finally, adequate transfer of advance care planning documents and serious illness conversation information from primary care to the hospital and back remain an important obstacle [18, 24].

However, the prevalence of treatment limitation decisions increased from 14.0% before hospitalisation to 53.7% in the 23 included AGUs which illustrates that geriatricians engage actively in reflecting about ceiling of treatment in older frail and seriously ill patients admitted to their hospital wards. There are only few cross-sectional studies in acute hospitals that have examined prevalence of treatment limitation decisions: in available single- or pauci-centre studies, it ranged between 13% and 63% [11–13, 26–28]. Our study gives a first insight into older patients' GOC as reported by their geriatrician: preservation of function is most important (46.8%), followed by being comfortable (31.2%) and least important is length of life (22.0%). These numbers are in line with recent studies in older people in the Netherlands [29] and in dementia caregivers [30] in whom life extension was not considered as very important [2]. However, it remains thought-provoking that only in 63% these GOC were discussed with the patients during hospitalisation, despite patient's rights of owning such conversations and the high importance of being involved [20]. This calls for an increased attention to find the right time to include AGU patients in discussing about what really matters to them [31].

Length of stay was not associated with the prevalence of treatment limitation decisions in this study, indicating that

treatment limitation decisions may not necessarily be time-dependent. Making ceiling of treatment decisions as early as within the first 48 h of admissions was also shown during the recent COVID pandemic where 70% of older patients were considered not suitable for intensive care admission in case of respiratory failure based on higher age, comorbidities and frailty [14, 32]. Also outside COVID times treatment limitation decisions within first 48 h of admission are common [10, 12, 28, 33]. Literature shows that patients with such early do not resuscitate orders often have shorter length of stay, fewer invasive interventions and ICU admissions at the end of life [28, 34–36] and have more probability of receiving spiritual care and having family present at time of death [37] without difference in in-hospital mortality between early and late treatment limitation decisions [33, 38].

In line with other studies [10, 12, 14, 32, 39] older patients who live with higher level of frailty and with more serious comorbidities had more often treatment limitation decisions. Short-term mortality increases with higher CFS and when CFS of 7 is reached, there is very high probability that patients are in the last months of their lives [40–42]. This underlines the crucial role of geriatricians in introducing palliative care [19, 32] also because they are experts in assessing the level of frailty. However, we also underline the importance of having discussions before acute admissions as we observed that geriatricians who participated in this study were more prone to install treatment limitation decisions when the patients already had a treatment limitation order in place before the current hospitalisation. Furthermore the communication gap between primary care and hospital should be filled based on the findings that advance care planning documents were lacking and that geriatricians do not regularly contact primary care to exchange information on GOC. Finally, because the correct interpretation of a patient's values is more likely obtained when performed by a team [42–45], geriatricians should also more often include the entire interprofessional team in taking treatment limitation decisions. This may improve the management of good deaths and relieve suffering at the end-of-life [22, 45, 46].

What is new in this study is the observation of a wide variation in prevalence of treatment limitation decisions rising from 0% to 100% of patients hospitalised across European AGUs. More specifically in patients with CFS of 7 and more, the prevalence of patients with a treatment limitation decision varied from 100% in Northern, 83.0% in Western, 58.6% in Eastern and 50.0% in Southern European region countries ($P < 0.001$). Türkiye is the only included country where treatment limitation decisions are not legal; however there were also other AGUs with few treatment limitation decisions without legal restrictions. There was variation both on the level of treatment limitation (for example in Northern and Eastern European countries, there was more often explicit written full code) and on the way it was discussed with other involved parties. Variability was observed between the European regions but also between countries in each of the included European regions and supports the notion that not only factors at the patient level but also subjective factors at the country, hospital, team and physician level exert a great influence in medical ethical decision-making [1, 7, 11, 18, 22]. The significant variability across European AGUs supports the need to establish European recommendations for best practices regarding serious illness communication and treatment limitation decisions in older persons admitted to the acute hospital.

Strengths and limitations

The innovative character, the large multicentre real-life dataset and the prospective nature of inclusion are the main strengths of this study. The heterogeneity of older patients admitted to AGUs is clearly reflected in the patient characteristics.

The first main limitation is the convenience sample of AGUs recruited by national coordinators with a special interest in palliative care; prone to selection bias. By combining Portugal, Spain and Türkiye into the same group and Türkiye being the only country with legal restrictions on treatment limitation decisions, this is an inhomogeneous group that may not reflect the reality in Southern Europe. However, the results are comparable to intensive care units where end-of-life care practices are less prevalent in Southern European countries [7–9]. Lastly, we lack the direct perspective of the patient, family, AGU team and primary care.

Implications for practice

The study results show the need for improved communication on many levels: with patients and families as well as within interprofessional teams and with primary care.

Interventions addressing communication at the interface between primary and hospital care should be a key component of quality improvement in delivering person-centred care to the older adult [24]. Some authors put advanced clinical practitioners forward to take up this role in safeguarding continuity of care [47].

We need AGU teams to be experts in restoration of function but also in palliative care [19] and more specifically in eliciting patient's wishes and GOC (also in cognitively impaired persons) [1] and translating these in treatment plans [48]. Improving palliative care skills such as complex decision-making requires not only communication skills [18] but also introduction of reflective practice and ethical leadership within interprofessional teams in order to better deal with difficult patient situations such as when patients or families choose treatments the care team may not recommend [1, 19, 45, 46, 49].

Future research

There is a need to study better models for recording serious illness communication and decision-making that can be used across settings. It is recommended that such standardised document combines advance directives, GOC discussions and ceiling of treatment decisions in a single resuscitation

plan [50]. These resuscitation plans are already more commonly used in countries like the UK [15], however, this country was not included in the study sample.

Scientific-sound guideline building on treatment limitation decisions could be another route to help stimulate high quality care for seriously ill patients. Geriatric, palliative care and primary care specialists should work together to provide optimal guidance for all frail older patients [19, 32].

This study can serve as a benchmark for practice and future research into serious illness communication and decision-making in AGUs.

Conclusion

European geriatricians frequently engage in goals of care discussions and in ceiling of treatment decisions based on prognostic factors such as frailty and comorbidities; however there is a lot of variation within and between European countries. If we want to prevent non-beneficial and potentially harmful treatment in older patients admitted in the AGU, interventions at the patient, team and hospital level and more guidance from professional organisations are needed.

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