

Levels of Medical Intervention and End-of-Life Practices in Long-Term Care Centres



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ABSTRACT

Background

Levels of medical intervention (LMI) are legal documents in which physicians record patient preferences, or those of their designated substitute decision-makers, concerning end-of-life care. Studies suggest that, although LMI are intended to orient clinical practice, their function tends to be limited to logistical aspects of care. How LMI shapes or guides patient-centred, end-of-life care remains unclear. The aim of this study was to examine possible associations between LMI and certain aspects of end-of-life care practices in LTCC, such as nurse-documented patient experiences of pain, and prescription and administration of medication.

Methods

A retrospective descriptive study of 100 files retrieved from a clinical database of deceased patients in LTCCs located in an urban integrated health and social service organization in Québec, Canada, was conducted.

Results

Significant associations between last documented LMI and frequency of narcotic prescription and administration, at either regular intervals or PRN, are highlighted. The time delay between last LMI assessment and patient death was one week or less for 39.4% of cases.

Conclusion

These results suggest that LMI assessment practices may not correspond to their intended use. A short time frame between last LMI (L-LMI) assessment and patient death may suggest less-than-optimal patient comfort in end-of-life care.

Key words: long-term care, prescription of narcotics, administration of narcotics, pain management, levels of care, patient preferences

INTRODUCTION

In Canada and other Western countries, observers report a proliferation of long-term care centres (LTCCs), both public and privately owned.^(1,2) Experts now estimate that a majority of deaths will occur in LTCCs by 2040,^(1,2) making these priority places for the development of end-of-life care practices.⁽³⁻⁵⁾ Communication between clinicians and patients, or their designated substitute decision-makers, appears of utmost importance to support quality end-of-life care practices in LTCCs.^(4,6) Through open and clear communication, preferences regarding goals of care in end-of-life are sought in order to avoid futile interventions, and to ensure that distressing symptoms are evaluated and relieved.⁽⁷⁻⁹⁾

In Québec, a gradation of levels of medical intervention (LMI) has been suggested since 1984.⁽¹⁰⁾ Recently, the Act Respecting End-of-Life Care⁽¹¹⁾ reiterated the importance of LMI by recognizing the primacy of explicit patient requests.⁽¹²⁾ The purpose of LMI is to foster communication on treatment and care preferences between the patient, the family, and the health-care team⁽¹²⁻¹⁴⁾ in order to facilitate end-of-life care decisions. Recorded in patient medical files, LMI have a legal status: physicians record explicit patient requests, or those of their designated substitute decision-makers, concerning end-of-life care.⁽¹²⁾ Signed by the attending physician, one of four LMI are possible. Level I corresponds to active treatment of all conditions, whereas level IV corresponds to comfort care only. Levels II and III correspond to intermediate situations. Ideally, LMI should be discussed for each patient upon admission and reassessed by the physician after significant changes in the person's health condition.⁽¹²⁾ Thus, the determination and frequent reassessment of LMI make it possible to distinguish futile care from that desired in case the situation changes, avoiding decision-making emergencies.⁽¹⁴⁾

Even though systematic LMI assessment is suggested in end-of-life care,^(12,14) studies conducted in LTCC and geriatric settings are few, and draw attention to different issues and

questions. For instance, a French study suggests that patients with neurocognitive disorders or who are unable to perform activities of daily living are more likely to be assigned a higher LMI which, however, is not significantly associated with mortality.⁽¹⁵⁾ In addition, significant variability between practitioners is reported, with experienced practitioners more likely to assign a higher LMI to their patients.⁽¹⁵⁾ Another study conducted in the United States suggests that white-race patients, and those using hospice services, are more likely to have been assessed for LMI in the past.⁽¹⁶⁾ Both studies bring into question the factors that are at stake in the decision to assess LMI. Other studies suggest that an increased frequency of LMI assessment reduces the risk of unwanted hospital death and is associated with a higher incidence of death in LTCC, as chosen by patients;⁽¹⁷⁻¹⁹⁾ while patients with fewer LMI updates may have a higher rate of transfer to hospital emergency departments.⁽²⁰⁾

With a focus on end-of-life care indicators that are of a logistical nature, such as place of death or hospital transfers, it appears that associations between LMI, frequency of its evaluation, and end-of-life care practices in LTCCs, including pain assessment and management, are undocumented. Considering initial intentions of LMI to orient physicians and health-care teams towards treatment preferences expressed by patients, exploratory studies are essential to identify patient-centred, end-of-life care practices. The aim of this study was to examine possible associations between LMI and certain aspects of end-of-life care practices in LTCC, such as nurse-documented patient experiences of pain, and prescription and administration of medication, to support the development of high-quality end-of-life care in LTCCs.

METHODS

A retrospective descriptive study⁽²¹⁾ was undertaken using an electronic health record database. One hundred (100) consecutive files of patients deceased between May 3rd and November 12th, 2016 were selected from seven LTCCs that are part of an integrated health and social service (IHSS) organization. These records accounted for 39.7% of all deaths that occurred in this urban IHSS during 2016. The study was approved by the IHSS ethics committee (#VN 18-19-13).

The following non-nominative data were extracted manually for each patient and recorded in a pre-established template:

- date of admission to LTCC and date of death;
- LMI and dates of consecutive evaluation;
- number of nurse-documented patient experiences of pain, 14 days preceding death;
- number of different prescriptions, including narcotics and other medication, seven days preceding death;
- presence of narcotic prescription (at regular intervals and PRN), seven days preceding death; and
- number of PRN narcotic administrations, last 24 hours preceding death.

Once data were extracted, they were analyzed using IBM SPSS Statistics for Windows, version 24 (IBM Corp. Armonk, USA). Descriptive statistics (frequencies and central tendencies), followed by chi-square tests for categorical variables and analysis of variance for continuous variables, were conducted.⁽²²⁾

RESULTS

LMI assessment was complete in 99 files up to time of death. One file did not contain LMI information because death occurred less than a week after patient admission. Table 1 reveals how LMI indices change over time in the seven selected LTCCs: 73.7% of patients were level I or II upon LTCC admission; while 52.5% were level IV at the time of death. The median interval between each LMI assessment was 1.6 years. The median interval between the last LMI (L-LMI) and patient death was 21 days; whereas the time delay between L-LMI assessment and death was one week or less for 39.4% of patients.

Table 2 presents associations between L-LMI on file and end-of-life care practices related to pain management. A higher L-LMI is significantly associated with a higher percentage of patients having been prescribed narcotic administration at regular intervals ($p < .001$) as well as PRN ($p < .001$) in the seven days preceding death. In particular, over 90% of L-LMI IV patients were prescribed narcotic administration at regular intervals as well as PRN in the seven days preceding death, while only 50% of lower LMI patients have such a prescription ($p < .001$). A higher L-LMI is also significantly associated with a higher frequency of narcotic administration PRN in the last 24 hours preceding death ($p < .001$). No statistically significant association was found between L-LMI and nurse-documented patient experiences of pain in the 14 days preceding death ($p = .09$). Finally, a lower L-LMI is significantly associated with the prescription of a greater number of different medications, in the seven days preceding death ($p < .001$).

TABLE 1.
Levels of medical intervention (LMI) practices (N = 99)

LMI on Admission (%)			
I	II	III	IV
12.1	61.7	23.2	3.0
LMI at Patient's Death (%)			
I	II	III	IV
3.0	26.3	18.2	52.5
Years between each LMI assessment (median)		1.6	
Days between L-LMI and patient death (median)		21	
≤ one week between L-LMI and patient death (%)		39.4	

LMI I = active treatment of all conditions; LMI II = active treatment, with some limitations to care; LMI III = ensure comfort as a priority over prolonging life; LMI IV = only comfort care.

TABLE 2.
Associations between last documented LMI and end-of-life care variables (N = 99)

Variables	L-LMI				Mean	p	χ^2	F-ratio
	I	II	III	IV				
% patients prescribed narcotic administration at regular intervals, seven days preceding death	0	53.8	50.0	92.3	71.7	< .001	26.8	-
% patients prescribed narcotic administration PRN, seven days preceding death	0	46.2	50.0	90.4	68.7	< .001	27.0	-
Number of narcotic administration PRN, last 24 hours preceding death	0	0.8	1.2	5.0	3.1	< .001	-	12.6
% nurse-documented patient experiences of pain, 14 days preceding death	66.7	42.3	33.3	63.5	52.5	.09	6.5	-
Number of different medications prescribed, seven days preceding death	12.6	15.6	11.8	7.6	10.6	< .001	-	11.4

DISCUSSION

This brief report suggests that L-LMI and end-of-life care in LTCCs carry some significant associations. In particular, a higher L-LMI, at level IV, appears associated with more frequent administration of prescribed narcotics at regular intervals and PRN in the seven days preceding death, as well as a greater frequency of narcotic administration PRN in the last 24 hours preceding death. In addition, at L-LMI level IV, there is a significant decrease in the number of different medications prescribed in the last seven days preceding death. Thus, a gradation of LMI is associated with more frequent prescriptions and administration of narcotics for patients in LTCCs.

Our results, however, raise questions concerning the issue of patient comfort in end-of-life care in LTCCs, beyond the prescription and administration of narcotics at L-LMI. The short time delay between L-LMI assessment and patient death (median of 21 days), compared to the median of 1.6 years between each LMI assessment, and the observation that up to 4 out of 10 patients (39.4%) received a L-LMI within a week of their death, suggest that LMI assessment practices may not correspond to their intended use. A short time frame between L-LMI assessment and patient death may actually suggest less-than-optimal patient comfort in end-of-life care, despite increased frequency of narcotic use in the last week or 24 hours of life. The absence of a statistically significant association between L-LMI and nurse-documented patient experiences of pain in the 14 days preceding death further raises questions regarding patient comfort in end-of-life care.

To our knowledge, no other study has examined possible associations between LMI and certain aspects of end-of-life care practices in LTCC, such as nurse-documented patient experiences of pain, and prescription and administration of medication. Since LMI are designed to foster communication on treatment and care preferences between patients, their family, and health-care teams,⁽¹²⁻¹⁴⁾ our results raise issues of concern regarding 1) how LMI is used to orient physician

end-of-life care practices, and 2) the effective participation of patients, their families, or their substitute decision-makers, in these discussions.

First, given that mean duration of stay in LTCCs in Québec is approximately 2.25 years,⁽²³⁾ the median of 1.6 years between each assessment that is portrayed by this exploratory retrospective study raises the issue as to how LMIs guide physician end-of-life practices to take patient preferences into account. Although it is recommended by Québec's Health Ministry that LMI assessment be conducted by physicians throughout patients' stay in LTCC to determine the intensity of care interventions such as pain relief and medication prescriptions,⁽¹²⁾ our results suggest that reassessment occurs in the latter period of end-of-life care. This could possibly reduce care options for patients and their families. Incidentally, a study that evaluated LMI use in Québec hospitals suggests that a level IV LMI was significantly associated with a higher proportion of palliative care consultations.⁽²⁴⁾ Postponing LMI assessment, and potential determination of level IV LMI, thus carries the risk of restricting access to palliative care or other end-of-life care, such as medical assistance in dying, among LTCC patients.

Second, the short time frame between L-LMI assessment and patient death may leave little time for patients or their families to engage in discussions with health-care teams and reach voluntary decisions regarding LMI and their end-of-life care. Studies have generally found high respect for patients' LMI and the time of death.^(16,24) However, if there is a short time frame between L-LMI assessment and death, patient preferences in terms of treatments and interventions in the period preceding death might not be fully considered by the health-care team. Discussions may occur too late, and may inadvertently delay careful planning and implementation of comfort care.

In light of these findings, more research must be conducted to identify factors and mechanisms that intersect in physicians' decision to assess LMI or not, such as its perceived usefulness for patient-centred care. In order to promote

discussions regarding LMI with patients and to increase the occurrence of LMI reassessment, it would also appear pertinent to routinize open dialogue between patients and LTCC health-care teams concerning end-of-life preferences and wishes.^(25,26) The decision to discuss end-of-life preferences should not be based on a clinical evaluation that indicates a decline in a patient's condition; it should be established as a systematic and regular professional health-care practice to ensure quality end-of-life care that respects patient preferences. Routine and personalized conversations should occur, minimally, on a yearly basis for every patient with a level I LMI. If the decision of a higher level LMI (II or III) is reached, it may be good practice to increase the frequency of these discussions. At this time, however, more research appears necessary to determine optimal LMI reassessment frequency.

The results of this exploratory study take on additional significance with the ongoing COVID-19 crisis in LTCC that has been exceedingly hard hit by the pandemic. High demands on health-care professionals in a context of scarce resources, as well as a rapidly evolving disease trajectory, strongly impede LMI assessment.⁽²⁷⁾ Visitation limits, telemedicine, and obtrusive personal protective equipment⁽²⁷⁾ further limit communication. However, to avoid non-beneficial or unwanted high-intensity care, and to limit the stress on health-care capacity and the risk of untoward transmission⁽²⁸⁾ in LTCC, LMI assessment and reassessment appears as an essential component of humane end-of-life care. These particular conditions must be taken into account as we rethink LMI assessment and how to solicit patient preferences for end-of-life.

CONCLUSION

This exploratory retrospective study suggests some significant associations between LMI in LTCCs and end-of-life care practices, such as prescription and administration of narcotics at regular intervals and PRN in the seven days and 24 hours preceding death. Findings relative to the short time frame between LMI assessment and patient death, however, raise issues as to our capacity to keep patients' desires at the heart of clinical decisions during the events surrounding death.

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CONFLICT OF INTEREST DISCLOSURES

We have read and understood the Canadian Geriatrics Journal's policy on conflicts of interest disclosure and declare there are no conflicts of interest.

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