



HARDER ON THE YOUNGER: EXAMINING THE PRACTICE OF END OF LIFE CHEMOTHERAPY

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Introduction

The use of palliative chemotherapy in the last month of life has been indicated as an aggressive practice in the end of life care for cancer patients. Several studies have shown higher rates (>20%) of end of life chemotherapy use and repetitively, higher usage of chemotherapy with decreasing age.

In our study, we evaluate the routine of giving chemotherapy in the last month of life and age, as a determinant of practice for chemotherapy in the end of life.

Methods

From year 2018 to 2019, 169 patients had passed away in the Oncology Ward in Hospital University Kebangsaan Malaysia. Baseline characteristics, tumour characteristics and treatment characteristics were identified.

The aggressiveness of end of life chemotherapy was calculated by the interval between last chemotherapy and the death in these patients. Factors administrating end of life chemotherapy in these patients were also analysed.

Results

Of the 169 patients, the mean age was 58.3 ± 12.6 . 55.6% were female patients and 44.4% were male patients. 68 patients (40.2%) received chemotherapy in the last 30 days of life. Within the proportion of patients who had chemotherapy in the last month of life, 64% were < 60 years old.

They were predominantly (69.1%) with ECOG status 2. The number of lines of chemotherapy initiated in the last 30 days were 41% and 35%, first and second line, respectively.

Age and ECOG status were shown to be significantly correlated ($p < 0.05$) to the use of end of life chemotherapy. Decreasing age increases the odds of experiencing chemotherapy in less than 30 days of death (OR, 0.68, 95% CI 0.52 to 0.88) with p value of 0.003.

Author	Country	No of patients	Year	Chemotherapy at EOL	
				2 weeks (%)	4 weeks (%)
Emmanuel	USA	7919	2003	-	9
Barbera	Canada	22544	2006	4.2	16
O'Brien	UK	1976	2006	-	8.1
Murillo	USA	417	2006	20	43
Kao	Australia	747	2009	8	18
Federica	Italy	102	2010	6	16
Essam	Oman	261	2010	29	48
Nappa	Sweden	374	2011	-	23
Zdenkowski	Australia	1121	2012	-	12.2
Harry	Switzerland	119	2014	7.6	11.7
June	Korea	696	2014	21.7	28.9
Amrallah	Saudi Arabia ³⁷	420	2015	22.6	55.6
Syed	Egypt	115	2016	9.56	-
Daniel	Uganda	595	2017	-	45.4
Ilaria	Italy	365	2018	7.1	-
Zhang	China	605	2020	-	16.2
Our Results	Malaysia	169	2021	26	40.2

Figure 1: Summary of reports of literature concerning chemotherapy at End of Life

Variables	Received Chemotherapy Less than 30 days before death		Received Chemotherapy Less than 14 days before death	
	(N=68)	%	(N=44)	%
Number of Chemotherapy Lines				
1	28	41.1%	20	45.4%
2	24	35.2%	14	31.8%
3	11	16.2%	7	15.9%
4	3	4.4%	2	4.5%
5	1	1.5%	1	2.2%
6	0	0%	0	0%
7	1	1.5%	0	0%

Figure 2: Number Of Chemotherapy Lines Received By Patients Who Died Within 2 Weeks And 4 Weeks From Last Dose Of Chemotherapy

Variables	Less than 2 weeks to Death			Less than 4 weeks to Death		
	OR	95% CI	p-value	OR	95% CI	p-value
Age	-	-	0.49	0.35 – 0.69	0.003	
Gender	0.93	0.46 – 1.87	0.568	1.1	0.64 – 2.2	0.565
ECOG	-	-	0.49	0.35 – 0.69	0.000	
Chemo Lines	-	-	2.2	1.60 – 3.11	0.150	

Figure 3: Multivariate analysis of factor associated with Chemotherapy in the last 2 weeks and 4 weeks of life

Conclusion

The use of palliative chemotherapy in the last month of life is still higher than recommended. Younger age and better performance status are probable factors in determining the practice of end of life chemotherapy as they may suggest better survival to both patients and physicians.

Discussion

To our knowledge, this is the first study in Malaysia to evaluate the aggressiveness of palliative chemotherapy in the end-of-life. Our findings attained the range in the literature of 18-60%. From our study, the practice of end-of-life chemotherapy paralleled studies from Saudi Arabia, Oman and Uganda (Figure 1). Possible explanations to higher use of chemotherapy in our centre include advanced/delayed initial presentation and accessibility to palliative care/hospice.

A study of cancer survival in Malaysia reports higher stage presentation where 56% are stage III/IV. Physicians are more inclined to attempt treatment in chemo-naïve patient, expecting to still deliver hope to these patients. Figure 2 shows 40 percent of the patients were initiated on first line palliative chemotherapy.

During the study year, there was interruption in its palliative care services and this may impact on the rate of chemotherapy use in the end of life. An Italian study found that for patients living in areas where palliative care services were not available, 52% received chemotherapy in the last 3 months, 15% in the last month, and 10-14% in the last 2 weeks of life. In contrast, of the patients living in the territory served by palliative care units, none received chemotherapy in the last 2 weeks of life, and 37% received it in the last 3 months of life. The study concluded that the availability of palliative care services can influence the interval between last chemotherapy.

Younger patients had higher rates of chemotherapy in less than 30 days of life as opposed to older patients. Our findings were similar to the published data in Switzerland and China and Uganda where younger patients were treated more frequently. Younger patient with fewer comorbidities and good performance status, often choose to receive more types of cytotoxic drugs and more lines of treatment. Physicians were more inclined to cease treatment in elderly patients with poorer performance status and comorbidities.

References

1. Earle CG, N. B. (2004). Trends in the aggressiveness of cancer care near the end of life. *J Clin Oncol*, 22: 315-321.
2. Barbera L, Paszat L, Chartier C. Indicators of Poor Quality End-of-Life Cancer Care in Ontario. *Journal of Palliative Care* (2006) 22: 12-7
3. Zhe Zhang, Meng Li Chen , Xiao Li Gu and Wen Wu Cheng. Use of Palliative Chemotherapy Near the End of Life : A Retrospective Cohort Study. *Annals of Palliative Medicine* (2020) 9: 2809-2816
4. National Cancer Registry, National Cancer Institute, Ministry of Health Malaysia (2018). *Malaysian Study on Cancer Survival (MySCan)*.
5. Rochigneux, Philippe, et al. "Use of chemotherapy near the end of life: what factors matter?" *Annals of Oncology* 28.4 (2017): 809-817