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LEVERAGES FOR G-CSF PRESCRIPTION IN THE OUTPATIENT SETTING AND BEYOND STANDARD RECOMMENDATIONS: A DESCRIPTIVE, OBSERVATIONAL STUDY

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Background

Despite significant advances in prevention and treatment, febrile neutropenia (FN) remains a common and serious complication of chemotherapy. Leverages data related to G-CSF use are missing.

This study aims to (1) describe the practices of G-CSF treatment implementation; (2) identify and measure the decision criteria related to their implementation in patients with breast (BC), lung (LC), or gastro intestinal cancers (GIC), in ambulatory settings, beyond the usual recommendations.

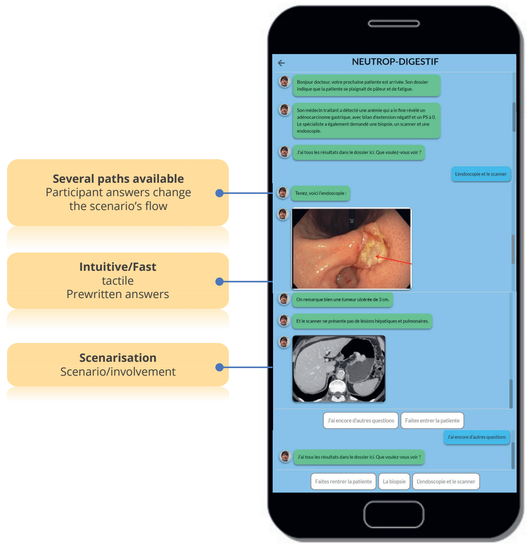
Table 1: Characteristics of participating physicians by cancer type

		Breast cancer (N=41)	Lung cancer (N=29)	Gastro Intestinal cancer (N=32)	Total (N=102)
Physician's Site of practice N (%)	N	41	29	32	102
	CH / ESPIC	10 (24.4%)	9 (31%)	11 (34.4%)	30 (29.4%)
	CHU	8 (19.5%)	12 (41.4%)	9 (28.1%)	29 (28.4%)
	CLCC (cancer center)	18 (43.9%)	6 (20.7%)	11 (34.4%)	35 (34.3%)
	Private clinic	5 (12.2%)	2 (6.9%)	1 (3.1%)	8 (7.8%)
Number of patients treated per month N (%)	N	41	29	32	102
	Less than 10	4 (9.8%)	4 (13.8%)	20 (62.5%)	28 (27.5%)
	Between 10 and 50	17 (41.5%)	15 (51.7%)	11 (34.4%)	43 (42.2%)
	More than 50	20 (48.8%)	10 (34.5%)	1 (3.1%)	31 (30.4%)
Physician's Seniority N (%)	N	41	29	32	102
	< 10 years	24 (66.7%)	15 (53.6%)	17 (60.7%)	56 (60.9%)
	> 10 years	12 (33.3%)	13 (46.4%)	11 (39.3%)	36 (39.1%)
Physician's Sex N (%)	N	41	29	32	102
	Female	22 (61.1%)	11 (39.3%)	17 (60.7%)	50 (54.3%)
	Male	14 (38.9%)	17 (60.7%)	11 (39.3%)	42 (45.7%)
Physician's specialty N (%)	N	41	29	32	102
	Medical Oncologists	40 (97. 6%)	15 (51. 7%)	15 (46. 9%)	70 (68.6%)
	Gynaecologists	1 (2.4%)			1 (1.0%)
	Pneumologists		14 (48.3%)		14 (13.7%)
	Gastroenterologists			17 (53.1%)	17 (16.7%)

Methods

This non-interventional, cross-sectional, multicenter study required clinical cases presented using conversational interfaces (chatbot), simulating a conversation with one or several virtual interlocutors by voice or text exchange.

The clinical simulations were defined according to 4 parameters: type of cancer, risk of FN related to chemotherapy and comorbidities, access to care, and type of therapy.



Results

The questionnaire was completed by 102 physicians.

Table 2: Descriptive statistics by cancer (for variables common to all 3 cancer types) and overall

		Breast cancer (N=77)	Lung cancer (N=57)	Gastro Intestinal cancer (N=60)	Total (N=194)
Therapy (fixed randomisation parameter) N (%)	N	77	57	60	194
	Adjuvant	41 (53.2%)	0 (0.0%)	0 (0.0%)	41 (21.1%)
	Neoadjuvant	36 (46.8%)	0 (0.0%)	32 (53.3%)	68 (35.1%)
	Metastatic	0 (0.0%)	57 (100.0%)	28 (46.7%)	85 (43.8%)
Risk of chemotherapy-related neutropenia (randomization parameter) N (%)	N	77	57	60	194
	Low/Intermediate Risk<20	38 (49.4%)	29 (50.9%)	27 (45.0%)	94 (48.5%)
	High Risk>20	39 (50.6%)	28 (49.1%)	33 (55.0%)	100 (51.5%)
Access to care (randomization parameter) N (%)	N	77	57	60	194
	Not (difficult)	36 (46.8%)	26 (45.6%)	27 (45.0%)	89 (45.9%)
	Yes (easy)	41 (53.2%)	31 (54.4%)	33 (55.0%)	105 (54.1%)
Cancer (fixed randomization parameter) N (%)	N	77	57	60	194
	Breast	41 (53.2%)	0 (0.0%)	0 (0.0%)	41 (21.1%)
	Lung	0 (0.0%)	57 (100.0%)	0 (0.0%)	57 (29.4%)
	Gastro Intestinal	0 (0.0%)	0 (0.0%)	60 (100.0%)	60 (30.9%)
Implementation of a G-CSF treatment N (%)	N	77	57	60	194
	Yes	68 (88.3%)	42 (73.7%)	54 (90.0%)	164 (84.5%)
	Not	9 (11.7%)	15 (26.3%)	6 (10.0%)	30 (15.5%)
What should be considered before prescribing a G-CSF for this patient? N (%)	N	68	42	54	164
	Chemotherapy Protocol	23 (33.8%)	9 (21.4%)	7 (13.0%)	39 (23.8%)
	Chemotherapy Protocol + comorbidities	12 (17.6%)	2 (4.8%)	8 (14.8%)	22 (13.4%)
	Chemotherapy Protocol + Age	2 (2.9%)	6 (14.3%)	2 (3.7%)	10 (6.1%)
	Chemotherapy Protocol + comorbidities + age	31 (45.6%)	25 (59.5%)	37 (68.5%)	93 (56.7%)
What type of G-CSF? N (%)	N	77	57	60	194
	Filgrastim short acting	21 (27.3%)	6 (10.5%)	37 (61.7%)	64 (33.0%)
	Lenograstim short acting	2 (2.6%)	0 (0.0%)	1 (1.7%)	3 (1.5%)
	Pegfilgrastim long acting	54 (70.1%)	49 (86.0%)	18 (30.0%)	121 (62.4%)
	Lipegfilgrastim long acting	0 (0.0%)	2 (3.5%)	4 (6.7%)	6 (3.1%)
Reason for G-CSF prescription: comorbidities N (%)	N	77	57	60	194
	Yes	31 (40.3%)	28 (49.1%)	29 (48.3%)	88 (45.4%)
	Not	46 (59.7%)	29 (50.9%)	31 (51.7%)	106 (54.6%)
Reason for G-CSF prescription: access to care N (%)	N	77	57	60	194
	Yes	29 (37.7%)	26 (45.6%)	18 (30.0%)	73 (37.6%)
	Not	48 (62.3%)	31 (54.4%)	42 (70.0%)	121 (62.4%)
Reason for G-CSF prescription: radioactivity of the 18-FDG tracer N (%)	N	77	57	60	194
	Yes	12 (15.6%)	10 (17.5%)	12 (20.0%)	34 (17.5%)
	Not	65 (84.4%)	47 (82.5%)	48 (80.0%)	160 (82.5%)
Reason for G-CSF prescription: type of chemotherapy N (%)	N	77	57	60	194
	Yes	72 (93.5%)	53 (93.0%)	58 (96.7%)	183 (94.3%)
	Not	5 (6.5%)	4 (7.0%)	2 (3.3%)	11 (5.7%)
Reason n°1 for the implementation of G-CSF N (%)	N	77	57	60	194
	Comorbidities	5 (6.5%)	8 (14.0%)	7 (11.7%)	20 (10.3%)
	Access to care	10 (13.0%)	10 (17.5%)	7 (11.7%)	27 (13.9%)
	Radioactivity of the 18-FDG tracer	2 (2.6%)	1 (1.8%)	5 (8.3%)	8 (4.1%)
	Type of chemotherapy	60 (77.9%)	38 (66.7%)	41 (68.3%)	139 (71.6%)
On what day should G-CSF be started compared to chemotherapy? N (%)	N	77	57	60	194
	J0	1 (1.3%)	1 (1.8%)	1 (1.7%)	3 (1.5%)
	J1	50 (64.9%)	30 (52.6%)	16 (26.7%)	96 (49.5%)
	J2	19 (24.7%)	13 (22.8%)	20 (33.3%)	52 (26.8%)
	J3	4 (5.2%)	4 (7.0%)	12 (20.0%)	20 (10.3%)
	J4	3 (3.9%)	9 (15.8%)	11 (18.3%)	23 (11.9%)

Most practitioners (84.5%) reported prescribing G-CSF, regardless of tumor type. G-CSF was prescribed more frequently for adjuvant/neoadjuvant therapy than for metastatic cases. Leading factors motivating the prescription were chemotherapy regimen, comorbidities, and age (in 56.7% of cases). Type of chemotherapy and access to care were cited as the top two reasons to prescribe G-CSF. Pegfilgrastim long-acting was prescribed in most cases of BC and LC (70.1% and 86%, respectively), while filgrastim short-acting was prescribed in most cases of GIC (61.7%). 76.3% of physicians prescribed G-CSF at the initiation of chemotherapy treatment.

Table 3: Parameters associated with G-CSF treatment

		Treatment with G-CSF (N=164)	No treatment with G-CSF (N=30)	Univariate analysis Odds ratio (95% confidence interval)	Multivariate analysis Odds ratio (95% confidence interval)
Therapy (fixed randomisation parameter)	N	164	30	p=0.003	p=0.003
	Adjuvant/Neoadjuvant	100 (61%)	9 (30.0%)	3.6 (1.6-8.6)	3.8 (1.6-9.1)
	Metastatic	64 (39.0%)	21 (70.0%)	Ref	Ref
Risk of chemotherapy-related febrile neutropenia (randomization parameter) N (%)	N	164	30	p=0.083	p=0.074
	Intermediate Risk<20	75 (45.7%)	19 (63.3%)	Ref	Ref
	High Risk>	89 (54.3%)	11 (36.7%)	2.1 (0.9-4.6)	2.2 (0.9-5)
Access to care (randomization parameter) N (%)	N	164	30	p=0.28	p=0.32
	Not (difficult)	78 (47.6%)	11 (36.7%)	Ref	Ref
	Yes (easy)	86 (52.4%)	19 (63.3%)	0.6 (0.3-1.4)	0.7 (0.3-1.5)
Cancer (fixed randomization parameter) N (%)	N	164	30	p=0.035	NA
	Breast	68 (41.5%)	9 (30.0%)	2.7 (1.1-6.7)	NA
	Lung	42 (25.6%)	15 (50.0%)	Ref	NA
	Gastro Intestinal	54 (32.9%)	6 (20.0%)	3.2 (1.1-9.0)	NA

Conclusions

Our findings suggest that recommended practices are broadly followed. In most cases, G-CSF is prescribed in early stages. In addition, physicians prescribed G-CSF more common in adjuvant/neoadjuvant patients than metastatic patients, as evidenced by a higher prescription of G-CSF in the curative situation.
Finally, the type of treatment tends to be a more significant determining factor than the patient's background.

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