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Background and Importance

- Chemotherapy-induced nausea and vomiting (CINV) is one of the adverse events that most interfere with the quality of life of oncologic patients.
- The most important factor influencing the severity of CINV is the emetic potential of chemotherapy. However, other factors like young age, female sex, poor functional status, cancer type, pregnancy-related nausea and vomiting, susceptibility to motion sickness and non-habitual alcohol and tobacco consumption, may influence CINV.



Aim and Objectives

- To compare CINV between sexes in patients with different emetic risk schemes and evaluate the predisposing factors and main adverse effects caused by antiemetics.



Materials and Methods

- Prospective observational study conducted in a tertiary-care hospital from February 2023 to May 2024 in naïve chemotherapy patients.
- CINV was evaluated using MASCC antiemetic tool, in acute (<24h) and delayed phase (24–120h).
- Results analyzed using χ^2 test or Fisher's exact test. Primary endpoint: complete response (CR) rate, defined as no CINV and no use of rescue drugs. Univariate and multivariate logistic regressions used to identify patient-related risk factors associated with non-CR.



Results

N=176 completed questionnaires



Males: 94



Females: 82

In females, young age (<60 years) and previous nausea and vomiting during pregnancy may contribute to non-CR.

Table 1. Demographic and clinical characteristics of patients.

Characteristics	Groups	
	Male (n = 29)	Female (n = 25)
MASCC completed questionnaires - n (%)	94	82
Age in years (mean ± SD)	67.2 ± 8.5	66.0 ± 5.8
Cancer type - n CQ (%)		
Lung	55 (58.5)	25 (30.5)
Colorectal	7 (7.5)	3 (3.7)
Gastric	13 (13.8)	3 (3.7)
Pancreas	19 (20.2)	40 (48.8)
Other	0 (0)	11 (13.4)
Setting - n CQ (%)		
Neoadjuvant/Adjuvant	25 (26.6)	36 (43.9)
Metastatic	69 (73.4)	46 (56.1)
Treatment line:		
- First line	66 (95.7)	37 (80.4)
- Second line	3 (4.3)	9 (19.6)
ECOG - n CQ (%)		
0	32 (34.0)	27 (32.9)
1	58 (61.7)	44 (53.7)
2	4 (4.3)	10 (12.2)
3	0 (0)	1 (1.2)
Predisposing factors - n CQ (%)		
History of nausea and vomiting during pregnancy	-	19 (24.4)
Motion sickness	0 (0)	3 (3.7)
Habitual alcohol intake	26 (27.7)	4 (4.9)
Habitual smoking	21 (22.3)	10 (12.2)
Chemotherapy scheme emetic risk - n CQ (%)		
Low	19 (20.2)	29 (35.4)
Moderate	22 (23.4)	17 (20.7)
High	53 (56.4)	36 (43.9)

Table 2. Patient-related risk factors associated with treatment failure in overall phase and according to sex.

Overall results	Univariate Analysis		Multivariate Analysis	
	OR (95% CI)	P	OR (95% CI)	P
Sex (female)	3.70 (1.70 – 8.08)	0.001	4.45 (1.58 – 12.55)	0.005
Age (<60 years)	2.74 (1.22 – 6.17)	0.017	4.11 (1.39 – 12.19)	0.011
Motion sickness (yes)	1.84 (0.16 – 20.83)	0.636	0.65 (0.05 – 8.31)	0.744
Habitual alcohol intake (yes)	0.35 (0.10 – 1.23)	0.069	0.74 (0.11 – 4.87)	0.758
Habitual smoking (yes)	0.21 (0.05 – 0.92)	0.012	0.19 (0.03 – 1.01)	0.051
Emetic risk				
Moderate	0.15 (0.04 – 0.57)	0.005	0.11 (0.03 – 0.66)	0.014
High	0.46 (0.21 – 1.01)	0.054	0.29 (0.16 – 1.57)	0.189
Treatment line (First line)	0.84 (0.41 – 1.74)	0.645	0.52 (0.32 – 2.80)	0.929
ECOG				
1	1.42 (0.63 – 3.25)	0.398	1.34 (1.02 – 7.13)	0.046
2	1.96 (0.51 – 7.52)	0.327	3.28 (0.64 – 21.16)	0.145
Male results				
Age (<60 years)	3.23 (0.88 – 11.88)	0.085	1.94 (0.28 – 13.22)	0.501
Motion sickness (yes)	-	-	-	-
Habitual alcohol intake (yes)	0.23 (0.03 – 1.91)	0.108	1.05 (0.07 – 14.88)	0.971
Habitual smoking (yes)	-	-	-	-
Emetic risk				
Moderate	0.10 (0.11 – 0.96)	0.046	0.10 (0.04 – 2.62)	0.168
High	0.18 (0.4 – 0.72)	0.016	0.13 (0.01 – 1.87)	0.132
Treatment line (First line)	0.71 (0.19 – 2.65)	0.618	0.27 (0.02 – 3.05)	0.290
ECOG				
1	0.62 (0.17 – 2.23)	0.467	0.75 (0.11 – 5.05)	0.769
2	-	-	-	-
Female results				
Age (<60 years)	4.21 (1.2 – 14.49)	0.020	26.95 (2.57 – 282.35)	0.006
History of nausea and vomiting during pregnancy (yes)	6.96 (2.23 – 21.74)	0.001	2.00 (0.26 – 15.46)	0.507
Motion sickness (yes)	1.02 (0.09 – 11.76)	0.988	0.37 (0.01 – 8.07)	0.526
Habitual alcohol intake (yes)	2.12 (0.28 – 15.93)	0.470	0.39 (0.01 – 12.43)	0.596
Habitual smoking (yes)	0.47 (0.09 – 2.38)	0.335	0.07 (0.004 – 1.16)	0.063
Emetic risk				
Moderate	0.22 (0.04 – 1.14)	0.071	0.08 (0.004 – 1.75)	0.110
High	1.04 (0.38 – 2.85)	0.937	0.57 (0.05 – 5.84)	0.636
Treatment line (First line)	1.49 (0.59 – 3.78)	0.394	0.87 (0.14 – 5.53)	0.882
ECOG				
1	2.77 (0.88 – 8.70)	0.081	11.49 (1.1 – 119.70)	0.041
2	2.93 (0.60 – 14.45)	0.186	21.89 (0.73 – 652.87)	0.075

Table 3. Antiemetic adverse effects recorded according to sex.

	Male (n = 94)	Female (n = 82)	P
Constipation	35 (37.2)	43 (52.4)	0.043*
Insomnia	19 (20.2)	17 (20.7)	0.932
Headache	11 (11.7)	7 (8.5)	0.489

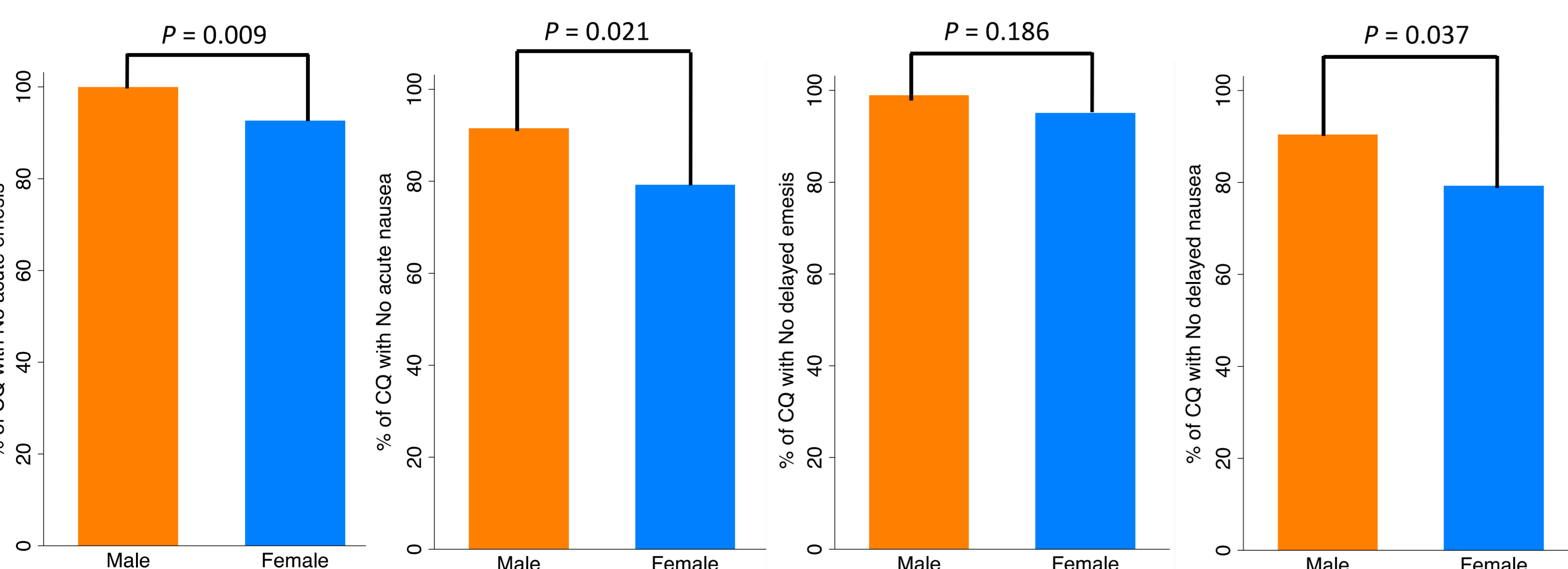


Figure 1. Graph of CINV results according to sex in the acute and late phases of completed questionnaires.

Conclusion and Relevance

- Males and females do not experience CINV similarly. Females experienced more CINV than males, with the consequences that entails, especially in quality of life.
- Antiemetic prophylaxis should be personalized, considering sex and age and not only the chemotherapy emetic potential.

