Sexual dimorphism in Small Intestinal NETS: Any association with development of mesenteric metastases?

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Purpose

- Patients with small intestinal neuroendocrine tumours (NETS) frequently present with widespread metastatic disease, with mesenteric and hepatic metastases associated with an increased mortality and morbidity.
- Up to 50% of those with mesenteric metastasis develop mesenteric fibrosis, particularly in post-menopausal women (Blažević et al. 2022).
- Despite this, research on sex differences in NET metastatic distribution remains limited. We therefore analysed sexual dimorphism in a large cohort of patients with SI-NETs.

Methods

849 SI-NET patient database (recruited 2009-2021) from Royal Free Hospital, London

- **Parameters analysed:** Age, Grade, Sex, Stage, Presence of mesenteric metastases and size, Presence of fibrosis and urinary 5HIAA.
- Survival analysis conducted for male and female patients, mesenteric metastases, mesenteric fibrosis and tumour multifocality.

Results

Metastases - no. (%)	Male (n= 455)	Female (n=394)	P-value
Hepatic	220 (64)	187 (63)	.675
Mesenteric	365 (57)	271 (43)	**<.001***
Skeletal	76 (17)	63 (16)	.758
Lung	30 (7)	25 (6)	.885
Orbital	3 (1)	6 (2)	.220
Breast	0 (0)	11 (3)	**<.001***
Lymph node	317 (70)	275 (70)	.986
Other distant	182 (40)	184 (47)	**.049***
Mesenteric fibrosis- no. (%)	202 (49)	127 (39)	**.006***
Mesenteric mass size (mm) - median (IQR)	34 (20-45)	20.75 (30-39)	.291

Table 1: Metastasis profile in SI-NET patients according to sex. Males have a significantly higher number of mesenteric metastasis (p<0.001) and fibrosis (p=0.006).

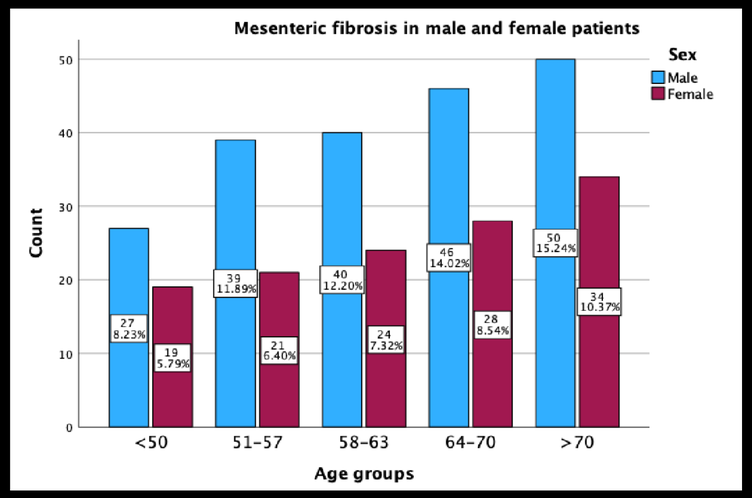

Figure 1: Mesenteric fibrosis in SI-NET patients according to sex and age. Mesenteric fibrosis was significantly higher in males in the 51-57 age groups (p = 0.008).

Results

- 54% patients were male.
- Using multivariate analysis, both **male sex** (p = 0.048) and **age of diagnosis** (p = 0.048) remained statistically significant predictors of mesenteric metastases.
- **Male sex** (p = 0.020) was also a significant predictor of mesenteric fibrosis.
- Only females elicited a statistically significant increase in mesenteric metastases with age.
- Analysis showed no significant difference in survival times between sexes.

Conclusions and Future Research

- Older females show a higher prevalence of mesenteric metastases, potentially due to the influence of post-menopausal sex hormones.
- Examining hormone levels in patients and receptor expression in tissue could provide further insight into the protective role of pre-menopausal status against mesenteric fibrosis.

References
Blažević, A et al. (2022). Sexual Dimorphism in Small-intestinal Neuroendocrine Tumors: Lower Prevalence of Mesenteric Disease in Premenopausal Women. *The Journal of clinical endocrinology and metabolism*, *107*(5), e1969–e1975.

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