

## TWO RETROSPECTIVE STUDIES ON GENDER DIFFERENCES: CHEMOTHERAPY TOXICITIES IN PATIENTS AFFECTED BY COLORECTAL AND PANCREATIC CANCERS

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**Introduction:** The WHO reported that 13% of all deaths originate from cancer. Colorectal cancer (CRC) is the third most common cancer in the world and the estimates of its morbidity greatly increase with older ages. The incidence and mortality of CRC in populations over 65years old are higher in women than in men: CRC is one of the most common causes of female cancer mortality after breast cancer and it is a major health threat among older women. Also, the 5-year survival rate of CRC in women is lower than men, particularly noteworthy in women over 70 years old. Focusing on Italian situation a recent revision registered approximately 53,000 new CRC diagnoses in 2017. Both among men (15% of all new tumors) and women (13%) CRC ranks second position, preceded respectively by lung and breast tumors, for a total of approximately 20,000 deaths/year, of which 54% were men. Pancreatic cancer (PC) is one of the deadliest cancer. Based on recent estimates of Global Cancer Observatory, PC causes more than 331,000 deaths/year, ranking worldwide as the seventh cause of cancer death in both sexes. The overall 5-year survival rate is about 6% and the highest incidence and mortality PC rates are found in developed countries. To date, the causes of PC are still less known, but a known cause of PC is tobacco smoking, and, still poorly differentiated among sexes, PC is likely to be explained in some international variations and gender differences by this risk factor. About PC in Italy in 2017 were newly diagnosed 13,700 cases and approximately the same number is deaths/year, equally distributed by gender.

**Methods:** We performed a descriptive and retrospective study on patients affected by CRC and PC in chemotherapy treatment at the Day Hospital of Subalpine OncoHematology Center (Molinette hospital, Turin). Patients data (age  $\geq 18$  years) were collected to assess potential gender-related differences regarding efficacy and toxicity of anticancer and concomitant treatment. Data from PC patients were collected from October 2017 and July 2018. Data from CRC patients were collected from October 2016 and July 2018. For both analyses several variables have been considered. Some patient-related: gender, age, ethnicity, weight, height, comorbidity, drugs coadministered with chemotherapy. Others variables disease and drugs-related such as TNM classification, therapeutic scheme, recurrence free survival, overall survival and adverse events.

**Results:** For CRC population data were collected from 329 patients, 173 men and 156 women. The most founded toxicities were asthenia (77%), nausea (64.4%), diarrhea (63%), neurotoxicity (63.3%) and pain (51.3%). Comparing the toxicity with the gender, only neurotoxicity ( $p=0.021$ ) and hyperthermia ( $p=0.034$ ) resulted statistically significant, with men being more affected. For PC population we gathered data of 73 patients, 41 women and 32 men. Most frequent toxicities included asthenia (87.7%), pain (87.7%) and nausea (72.6%). When comparing genders, only constipation resulted statistically significant ( $p=0.020$ ), with women being more affected.

**Discussion and conclusion:** Two oncologic diseases, two really different cancer in terms of epidemiological data. CRC is a more stable, well controlled, disease, with an Italian 5-year survival rate of 64%. In this field it could be of a real clinical interest perform analyses gender-related to better tailor available treatments. PC remains one of the deadliest cancer types, with an Italian 5-year survival rate of 8%. In this context gender-related analyses seem to be of secondary importance, but still a starting point. Gender pharmacology, especially in the oncologic field, is a new topic. There are very few scientific studies about gender differences in chemotherapy-related toxicities. Further studies are absolutely needed to broaden knowledge in common cancers such as CRC but also in less frequent but very malignant disease such as PC, to properly guarantee a more personalized assistance.