BACKGROUND: Inhabitants of Antofagasta (Northern Chile) were exposed to significantly elevated levels of arsenic in drinking water between 1958 y 1971. The consequences of this contamination are currently a relevant issue to local health care systems due to elevated bladder cancer (BC) incidence and mortality rates. Beyond arsenic-exposure, few is known about coexistence of further BC environmental risk factors in affected individuals living in these regions. Furthermore, there is little information about the clinicopathological characteristics of arsenic-related BC. The objective of our study was to compare demographic and clinicopathological characteristics of patients with BC living in a contaminated and two reference areas within Chile.

METHODS: Data of 278 patients with BC (84 in Antofagasta, all of them exposed to arsenic in a well-defined period of their lives, and 194 in Santiago with no exposure to arsenic) were obtained in an in-person interview and revision of medical charts. Demographic and clinicopathological data in addition to information about environmental risk factors were compared with parametric and non-parametric tests as needed. Smoking status was evaluated according to the WHO-classification: a never smoker was defined as an individual who had never smoked or had smoked <100 cigarettes during lifetime and an ever smoker was an individual who had smoked ≥100 cigarettes during lifetime.

RESULTS: There were no significant differences between groups regarding age at presentation (65.8 vs. 67.2 and 66.5 years; p=0.69) and female gender (28.6% vs. 20.4 and 29.8%; p=0.25). Meanwhile, familial history of BC was significantly more frequent among the arsenic-exposed population (14.5% vs. 0 and 7%; p<0.001). There were no differences concerning occupational exposure. Tobacco smoking prevalence according to WHO criteria was similarly high among groups (58.3% in Antofagasta vs. 66.9 and 76.4% in Santiago; p=0.24) but significantly lower for patients in Antofagasta after adjusting for

socioeconomic status (p=0.022). Likewise, proportion of current smokers was significantly lower in the arsenic-exposed population (8.3% vs. 34.8 and 40%; p<0.001). Concerning clinicopathological features, a significantly higher proportion of locally advanced (11.9 vs. 0 and 1.8% T3/4 tumors; p<0.001) and high grade tumors (86.6% vs. 59.1 and 63.2% WHO 2004 high grade tumors; p<0.001) were observed within arsenic-exposed patients.

CONCLUSIONS: Our study accounts for relevant differences concerning demographic and clinicopathological characteristics of BC patients between an arsenic-exposed region and reference sites. This has to be considered and requires further evaluation in order to define efficient screening and management strategies for this high-risk population.