Chi-Square Automatic Interaction Detection (CHAID) Analysis: Understanding and Informing Treatment Choice of Second-Generation Metastatic Urothelial Cancer Therapy

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Background

- Treatment failure of metastatic urothelial cancer (mUC) is the most common type of bladder cancer, representing 95% of cases.

- Molecular targets, which are typically identified at an early stage, from high-recurrence (e.g., 78%) and experience recurrence within five years), and late tumor radiotherapy and it is one of several significant-maintained treatments.

Objective

- To demonstrate the usefulness of the Chi-Square Automatic Interaction Detection (CHAID) analysis to identify drivers of 2L treatment for mUC in a global study.

Methods

Data

- Data were collected between February 2015 and March 2017 in a retrospective chart review study that was conducted in Australia, Canada, France, Germany, Italy, Spain, and the United Kingdom.

- Demographic and geographic data collected with a patient management system were used to ensure representative selection, including sources, and countries.

- Physicians provided information on the 1-3 most recent patients who started and stopped treatment for mUC in a global study, according to the study, patient inclusion/exclusion criteria, and prior informal patient visits, for the study.

- Inclusion criteria: 1-3 years in clinical practice, 37% of time spent in clinical practice, and treating 3 mUC patients over the study period. Physicians were asked whether they treated 3 mUC patients over the study period. Physicians who did not respond to the study.

- Measures

- Physician Characteristics

- Patient description: age, sex, residency specialty practice setting

- Practice Setting: Employment Status

- Histology of Primary Tumor for mUC

- Chronic Pulmonary Disease, Chronic Bronchitis, Emphysema

- Diabetes

- Don’t Know

- Patient Health Status

- Occupational exposures, employment status, supportive care, emollients

- Site of Metastases

- Physician Characteristics

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Result

Physician Characteristics

- Table 1: Physician Characteristics

- Patient Health Status

- Table 2: Patient Health Status

- Physician Characteristics

- Table 3: Physician Characteristics

- Patient Health Status

- Table 4: Patient Health Status

- Non-Platinum-Based 2L Treatment

- Table 5: Non-Platinum-Based 2L Treatment

Conclusions

- The CHAID analysis is a useful tool for identifying associations between subgroups.

- Multiple factors are involved in treatment choice for mUC related to the treating physician and the patient.

- Physician-reported platinum eligibility is most influential, followed by physician and patient characteristics.

- The study results of the associations between drivers of 2L platinum-based treatment are to generate hypotheses for use in predictive models and identify potentially at-risk subgroups for future study.

Limitations

- The main outcome variable, platinum eligibility, used in the CHAID analysis is not a validated survey item. Rather, it is physician-reported question and analysis. Patient and physician characteristics were selected based on the clinical relevance and feasibility, however, results should be considered with caution due to the small sample sizes.

- Adverse events were reported on a standard definition (SD) of toxicities and range for continuous variables.

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