Using data mining and data vision to improve the efficiency of a care pathway: an example for advanced adnexal cancers

Introduction/Background The purpose of a care pathway is to standardize or streamline the sequence of different therapeutic steps. In oncology, such an organization promotes more efficient management for patients. Adnexal carcinoma is most often diagnosed at an advanced stage and its management will require several steps: from diagnosis to excision surgery, to chemotherapy and maintenance treatment. In our hospital, we have developed a clinical pathway for patients with advanced adnexal cancer. With the help of ‘educated’ software, we were able to perform daily analyses of predefined indicators, and thus help us target the best quality of medical and surgical care.

Methodology A multidisciplinary team validated the key steps of the care pathway. Indicators were defined based on current European recommendations. The software was trained to automatically extract useful elements from the patient’s electronic medical record. Medical and paramedical managers check the data on a regular basis. Indicators are updated daily and changes in practice are evaluated prospectively.

Results In total, until April 2023, 17 milestones have been progressively tested and defined, allowing for the analysis of 20 indicators. From January 2018 to March 2023, 497 patients were identified in the Turquoise pathway. The median times of the pathway were 6 days (5.5–8) from first call to first medical appointment, 12 days (1–69) from first appointment to diagnostic procedure, 14 days (1–46) from histopathological result to start of primary chemotherapy if indicated. The organization of appointments and the management of peritoneal biopsies performed by laparoscopy were modified.

Conclusion The use of machine learning has allowed to build a care pathway for patients requiring the same therapeutic steps with indicators available in real time that help to organize the care as efficiently as possible. The introduction of machine learning could save caregivers time and thus promote direct patient interactions, allowing patient-focused care.

Abstract #442 Figure 1 Turquoise Pathway: advanced ovarian care

Establishing interstitial needle brachytherapy program in gynaecological malignancies in a new cancer centre in Oman

Introduction/Background Interstitial Needle brachytherapy (INB) is a form of radiotherapy where radioactive sources (RS) are directly placed into or close to the tumor to deliver high doses of radiation. These are backed by several studies which have shown better disease control and overall survival when combined with External Beam Radiotherapy in Gynaecological Malignancies.

We are the first Centre in Oman to successfully start the INB program in gynaecological cancers. In this abstract, we highlighted the various challenges to the implementation of INB that can impact its utilization.

Methodology The challenges in setting up the INB program, were stratified into: Equipment, Expertise, Quality, Patient Compliance, and Importation of RS.

Results Equipment INB requires purpose-built brachytherapy suite and specialized equipment, which involves support for maintenance. We managed this by having a pre-purchase clause with the vendor in which there would be a service-engineer available in the department as there are no service centers in region.

Expertise INB requires a learning curve. We dealt with this by asking the vendors for arranging visits and training to well-established Brachy-centres.
Quality Regular multi-disciplinary team meetings (MDTs) and internationally collaborated peer-reviews of each case to ensure high-quality delivery of treatment.

Patient compliance We overcame patient anxiety and misconceptions with educational sessions using videos, presentations, printed material, and access to the patient website portal.

Importation of RS: Regulatory services are not well established in developing countries, necessitating extra documentation and new policies and rules. Some associated government agencies are not aware of the concept of radioactivity. Logistical issues and custom clearances were a challenge and were the biggest hurdle we encountered.

Conclusion This abstract provides a glimpse of the challenges we faced establishing INB program; working with regulatory services, training our staff, having regular MDT and peer-reviews have helped us pass these hurdles.

Disclosures No Disclosure

PROGNOSTIC NUTRITIONAL INDEX AS A PREOPERATIVE MARKER OF INFECTIOUS MORBIDITY IN GYNECOLOGIC ONCOLOGY PATIENTS


Introduction/Background Nutritional status is directly associated with the long-term prognosis of cancer patients as well as the perioperative outcome, including infectious morbidity. Prognostic nutritional index (PNI), a predictor of nutritional status, is considered to be an important prognostic indicator in cancer patients and this fact has been also observed in gynecological cancer as well.

Methodology We conducted a prospective observational study of gynecologic oncology patients undergoing surgical procedure between January 2019 and December 2021. Patient with extremely low body mass index (BMI <18 kg/cm2) were excluded. Multivariate predictive analysis for postoperative infectious diseases was performed using logistic regression, naïve Bayes, classification and regression trees, random forest and neural network analysis with the Python software. Parameters that were considered included patient age, body mass index (BMI), ECOG status, smoking, presence of systemic disease, use of enhanced recovery after surgery protocol, perioperative PNI and postoperative CRP.

Results Overall, 209 gynecological cancer patients were included in the present study. Of those, 43 women (20.6%) developed perioperative infections, including 16 patients with surgical site infection, 12 patients with urinary tract infections, 8 women with respiratory infections and 7 women with other causes. Preoperative PNI performed better than post-operative white blood cell count in detecting patients with postoperative infectious morbidity, however it was inferior to postoperative C-reactive protein (AUC: .562, .375 and .723 respectively). Classification and regression tree and random forest analysis achieved an outstanding performance in detecting the risk of perioperative infectious morbidity (AUC .979 and .990 respectively). PNI ranked first in the information gain and Gini coefficient analysis.

Conclusion Concluding, PNI may be able to predict postoperative morbidity in gynecologic oncology patients undergoing surgical procedures; however, its use as a single factor in a multivariate analysis setting has moderate predictive accuracy and should be avoided.

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TRENDS OF EARLY-DEATH IN GYNECOLOGIC MALIGNANCY: A POPULATION-BASED ANALYSIS

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Introduction/Background In cancer care, mortality event occurring soon after the diagnosis of malignancy (early-death) reflects an indicator for various patient, tumor, and treatment factors. The objective of this study was to assess temporal trends of early-death in gynecologic malignancy at population level in the United States.

Methodology This retrospective observational study queried the National Cancer Institute’s Surveillance, Epidemiology, and End Results Program from 2000–2020. The study population was 461,321 patients with gynecologic malignancies (uterine [n=242,716], tubo-ovarian [n=119,995], cervical [n=68,771], vulvar [n=22,995], and vaginal [n=6,844] cancers) who had at least 2 months of follow-up after diagnosis. Outcome was early-death, defined as mortality event occurred within 2 months from cancer diagnosis. Linear segmented regression with log-transformation was used to assess temporal trends using one-year increments in each malignancy type.

Results Tubo-ovarian cancer had the highest rate of early-death (10.5%), followed by vaginal (5.5%), cervical (2.9%), uterine...