HOPA Annual Conference 2025
Research Abstracts

Late-Breaking Research Abstracts

HOPA Annual Conference 2025

Late Breaking Research: CLINICAL/TRANSLATIONAL RESEARCH

Choice of Antifungal Prophylaxis and Risk for Invasive Fungal Disease in Patients With Acute Leukemia Receiving Oral Anticancer Therapies With Significant CYP450 Drug Interactions

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BACKGROUND: Patients with acute leukemia have a high risk for invasive fungal disease (IFD). Per the NCCN guidelines, antifungal prophylaxis is recommended for patients with acute leukemia and neutropenia for the prevention of IFD. Triazoles are often employed for antifungal prophylaxis, but patients are prone to drug interactions with oral anticancer agents.
OBJECTIVE: To assess the prescribing patterns, efficacy, and safety of antifungal prophylaxis among patients with acute leukemia who received induction chemotherapy including an oral anticancer agent metabolized through CYP450.
METHODS: This was a single-center, retrospective-cohort analysis conducted from July 2020 to August 2024. The inclusion criteria were age >18 years, a diagnosis of acute leukemia, and receiving oral anticancer therapy with induction treatment. Patients were excluded from the study because of incomplete data. Patients were identified through the electronic health record and the data that were extracted included demographics, laboratory values, vitals, acute leukemia subtype, new leukemia diagnosis or relapse, induction chemotherapy regimen, antifungal prophylaxis, previous antifungal use, previous fungal infection(s) and treatment, coinfections, response achieved after induction, and adverse events.
RESULTS: A total of 128 patients were included in the study. Most patients had acute myeloid leukemia (94%), with most being new diagnoses (68%). The median age was 69 years, and 59% of the patients were male. The leukemia prognostic risk categories were 55% poor risk, 39% intermediate risk, 4% favorable risk, and 2% unknown risk. Most patients were prescribed antifungal prophylaxis (87%), with 46% receiving micafungin, 7% triazoles, and 34% sequential

therapy (micafungin or triazole followed by the other). The oral chemotherapy agents received included venetoclax (78%), midostaurin (14%), dasatinib (4%), ponatinib (2%), and ivosidenib (1%). In all, 3 patients had proven IFD (2 with micafungin and 1 with subsequent therapy) and 11 patients had possible IFD (6 with micafungin, 1 with voriconazole, 3 with subsequent therapy, 1 with no prophylaxis). Adverse events were observed across all of the groups, including micafungin (grade 1 or 2, 14.9%; grade 3 or 4, 11.2%), triazole (grade 1 or 2, 8.6%; grade 3 or 4, 8.9%), subsequent therapy (grade 1 or 2, 15.3%; grade 3 or 4, 14%), and no prophylaxis (grade 1 or 2, 6.4%; grade 3 or 4, 6.8%).

CONCLUSION: The prescribing patterns favored micafungin for antifungal prophylaxis. Patients who received micafungin alone had an increased incidence of IFD. The micafungin and subsequent therapy groups had the highest rates of adverse events. Because of the small sample size and low rates of IFD, a larger study is needed to evaluate the preferred antifungal prophylactic agent for patients with acute hematologic malignancies receiving induction therapy with oral anticancer agents that interact with azole antifungals.

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Late- Breaking Research: PRACTICE MANAGEMENT RESEARCH

Evaluating the Value of Clinical Oncology Pharmacists: Time-Savings for Healthcare Providers in The U.S. Oncology Network

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BACKGROUND: Evaluating pharmacists' value through novel metrics is becoming increasingly important in the face of drug margin compression in the oncology space. Trinidad and colleagues evaluated the impact of oncology pharmacists in the ambulatory setting, reporting that 545 interventions over the course of 2 years resulted in an estimated 140 hours of provider time saved.[1] This underscores the potential for pharmacists to optimize workflows while providing the same quality of care, potentially freeing clinician time for additional patient care.
OBJECTIVE: To determine the value of interventions made by remote-based clinical oncology pharmacists by quantifying the time saved for healthcare providers within The US Oncology Network (The Network).
METHODS: Clinical pharmacist intervention data were analyzed over a 2-week period to identify the intervention subtypes that saved provider time. A survey was developed with example patient scenarios for each intervention type and was sent to providers to validate the time, in minutes, that each type of task would take them. The median provider time spent by

category was calculated. Standard criteria were used to prospectively document interventions as saving provider time. The data for 1 month were analyzed using descriptive statistics, and the provider time saved was calculated by multiplying the median minutes from the provider survey by the number of interventions categorized as saving provider time within that category.

RESULTS: Survey responses were received from 17 practices within The Network and included 61 physicians, 17 nurse practitioners, and 12 physician assistants. The median provider time saved for each intervention type resulted as follows: Business Office Support was 23 minutes, Drug-Drug Interaction was 8 minutes, Drug Dosing was 8 minutes, Drug Information was 23 minutes, and Supportive Care was 23 minutes. In October 2024, 667 interventions were recorded by 14 clinical pharmacists, with 353 (53%) of these interventions falling into categories with known provider time-savings based on survey data. These interventions resulted in a total time-savings of 4489 minutes (75 hours) for practice providers.

CONCLUSION: This analysis revealed that pharmacists' interventions save a substantial amount of provider time. This saved time allows providers to dedicate more attention to patient care. Future directions aim to further substantiate these advantages and explore additional ways in which clinical oncology pharmacists contribute to the value of the healthcare team. By reducing the time providers spend completing medication-related tasks, clinical pharmacists enhance the efficiency of oncology practices. These findings emphasize the critical role of remote clinical oncology pharmacists in optimizing resources within The Network.

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Late-Breaking Research: CLINICAL/TRANSLATIONAL RESEARCH

Evaluation of Fam-Trastuzumab Deruxtecan Utilization Among Patients With Advanced or Metastatic Gastric/Gastroesophageal Junction Adenocarcinoma

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BACKGROUND: Fam-trastuzumab deruxtecan (TDxd) is approved for use in advanced gastric/gastroesophageal junction cancer (aGC) as well as any HER2-positive solid tumor. There are differences in dosing and in HER2 testing methodology in the studies used to support the aGC and solid tumor indications. It is hypothesized that the higher dose recommended for aGC may lead to greater adverse events, potentially negating benefit. Furthermore, not retesting for HER2 status after failure of previous anti-HER2 therapy in aGC could miss patients whose tumors no longer express HER2.
OBJECTIVES: To describe the efficacy and safety of TDxd in patients receiving treatment for aGC in a gastrointestinal medical oncology clinic at a large comprehensive cancer center. The secondary objectives include determining the median starting dose and relative dose intensity and describing the patterns of use in terms of line of therapy and HER2 testing before the initiation of TDxd.
METHODS: A retrospective chart review was conducted that included patients who initiated TDxd for the treatment of aGC at The James Cancer Hospital between January 1, 2021, and May 31, 2024. The coprimary end points were progression-free survival (PFS) and overall survival at 6 months and the incidence of select grade 3 or 4 adverse events (neutropenia, thrombocytopenia, diarrhea, pulmonary adverse events, or any hospitalization for a potentially drug-related adverse event).
RESULTS: A total of 14 patients met the study criteria, of whom 13 were evaluable for survival. TDxd was administered in the second-line setting in 5 patients, and the median number of

previous therapies for the entire cohort was 2. The median average TDxd dose per patient was 6.4 mg/kg, and the median relative dose intensity was 89.9%. The 6-month PFS rate was 46.2% (n=6) and the 6-month overall survival rate was 61.5% (n=8). Of the 10 patients evaluable for disease response, 7 had at least a partial response according to their primary oncologist. Of the 14 total patients, 7 (50%) had a grade 3 or 4 adverse event that was considered potentially treatment-related, including 2 (14.3%) cases of fatal lung adverse events. A total of 6 patients discontinued TDxd because of adverse events without disease progression and an additional patient had radiographic progression but continued receiving TDxd treatment, which was later stopped because of worsening adverse events.

CONCLUSION: Despite use in a heavily pretreated sample, TDxd was administered with high relative dose intensity, and the efficacy outcomes were comparable with those in larger controlled clinical trials. The adverse events were worse in our cohort, however, compared with clinical trials. It is possible that use of a lower TDxd dose would improve tolerability without compromising efficacy.

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Late-Breaking Research: PRACTICE MANAGEMENT RESEARCH

Implementation of an Oral Oncolytic Monitoring Pilot Program: A Specialty Pharmacist-Led Approach Using the Revised Edmonton Symptom Assessment System

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BACKGROUND: Oral oncolytic therapy offers benefits such as ease of administration, fewer clinic visits, and enhanced quality of life. However, the monitoring of adverse drug reactions largely relies on patient self-reporting, which may result in undetected issues. The revised Edmonton Symptom Assessment Scale (ESAS-r), a validated tool used in outpatient cancer care, serves as a patient-reported outcomes measure to assess symptoms and therapy-related side effects. The implementation of the tool at the health-system specialty pharmacy (HSSP) level has yet to be extensively explored. Given their frequent patient outreach, specialty pharmacists may be ideally positioned to complete the ESAS-r for patients to assist with bridging care, proactively monitor medication safety, and provide patient education.
OBJECTIVE: To evaluate the implementation of a specialty pharmacist–led oral oncolytic monitoring program in an HSSP. The program utilizes the ESAS-r to capture, assess, and prompt interventions by specialty pharmacists aimed at addressing gaps in current oral oncolytic monitoring practices.
METHODS: This quality improvement project is a prospective descriptive study designed to evaluate a specialty pharmacist–led oral oncolytic monitoring program within an HSSP. Patients receiving an oral oncolytic drug from September 24, 2024, to November 23, 2024, from the CHRISTUS Specialty Pharmacy (CSP) were included in the pilot study. To integrate the ESAS-r into the CSP workflow, a flowsheet was developed for use in conjunction with routine clinical assessments. Based on the ESAS-r score, the pharmacists' interventions were implemented, including patient counseling or provider outreach, as clinically appropriate. The primary end points used descriptive statistics to evaluate the type and quantity of the pharmacist interventions. The secondary end points examined the frequency of symptom severity, average

symptom scores, and the average time spent by the specialty pharmacist completing the oral oncolytic monitoring program.

RESULTS: A total of 76 patients were enrolled in the oral oncolytic monitoring program. The most common cancer types were breast cancer (20%), followed by chronic lymphocytic leukemia (16%) and prostate cancer (14%). Palbociclib (10.5%) and venetoclax (10.5%) were the most frequently received treatments. Of the total patients, 72% required an intervention, with patient counseling (42%) being the most common type. Among all reported symptoms and side effects, tiredness was the most frequent and severe.

CONCLUSION: The high number of pharmacist interventions required highlights a potential unmet need in patients receiving oral oncolytics. Implementing an oral oncolytic monitoring program that incorporates the ESAS-r allows for the HSSP to capture and proactively address patient-reported side effects. This pilot study suggests that specialty pharmacists could be an optimal stakeholder to address the gaps in current oral oncolytic monitoring practices.

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Late-Breaking Research: PRACTICE MANAGEMENT RESEARCH

Incorporation of a Statewide Cancer Drug Repository Program Within an Integrated Specialty Pharmacy

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BACKGROUND: Medication access for patients with cancer has become increasingly challenging as oral anticancer agents have established a prominent position in cancer treatment. Medically integrated specialty pharmacies serve an important role in enhancing patient medication access and in navigating the multiple financial barriers and facilitators of medication access.
OBJECTIVE: To describe the impact that participation in a statewide cancer drug repository (CDR) program has on specialty pharmacy employees and the impact its use has on other medication access resources.
METHODS: This single-center, retrospective analysis was conducted with data from September 2023 to September 2024. In addition, an employee satisfaction survey was completed by specialty pharmacy staff in December 2024. The intervention was participation in a statewide CDR network, YesRx, beginning in September 2023. Our institution had a stand-alone CDR from January 2023 to September 2023 before joining the statewide network. Therein, we describe the utilization of medication access resources, workflow, and employee satisfaction related to YesRx participation.
RESULTS: A total of 19 of 21 (90%) specialty pharmacy employees completed the satisfaction survey. Of those 19, 9 were pharmacy technicians, 9 were pharmacists, and 1 was a pharmacy intern. In all, 12 of the participants reported working within the specialty pharmacy before CDR participation. Of the 12, 5 (42%) participants reported an increase in workload and the remaining

7 (58%) reported no change. In all, 8 of 12 (67%) participants reported an increase in work satisfaction as a result of YesRx participation, the remaining 4 of the 12 participants reported no change in satisfaction. None of the respondents reported a decrease in satisfaction. All 19 participants recommend CDR participation to other integrated specialty pharmacies. From September 2023 to September 2024, we dispensed a total of 263 prescriptions from the statewide CDR. We found that the use of the CDR did not decrease our utilization of other medication access resources but rather supplemented it. The majority of patients receiving CDR medication did so in conjunction with another resource, and the CDR allowed us to begin therapy in a timelier fashion or allowed us to fill a gap in benefits coverage that would have otherwise resulted in nonadherence.

CONCLUSION: Participation in the statewide CDR Network, YesRx, provided a high level of satisfaction for our team members and complemented the current medication access resources.

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Late-Breaking Research: PRACTICE MANAGEMENT RESEARCH

Pressurized Intraperitoneal Aerosolized Chemotherapy: Operationalizing From a Pharmacy Perspective at a Large Academic Medical Center

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BACKGROUND: Intraperitoneal chemotherapy has been available for the treatment of peritoneal metastases and primary peritoneal cancers for almost 7 decades. Pressurized intraperitoneal aerosolized chemotherapy (PIPAC) was developed in Europe and has only recently been offered in the United States. PIPAC provides an alternative for patients who do not qualify for hyperthermic intraperitoneal chemotherapy (HIPEC) and cytoreductive surgery.
OBJECTIVE: To describe pharmacy involvement in the implementation of PIPAC at The University of Vermont Medical Center (UVMMC).
METHODS: The investigators rs describe the compounding procedures for chemotherapy, mechanics of instillation via a single-chamber power injector, supportive medications needed before and/or after cytoreductive surgery, and the safety protocols used for PIPAC in the operating room.
RESULTS: The first 2 patients at UVMMC received PIPAC with cisplatin and oxaliplatin in the Fall of 2024. One patient subsequently qualified for HIPEC, and the other is continuing PIPAC and systemic chemotherapy.
CONCLUSION: The investigators developed compounding procedures and a line setup for loading the power injector, and collaborated on safety procedures in the operating room to successfully and safely implement PIPAC at UVMMC. With this, UVMMC became one of the first hospitals in the nation to implement this procedure.

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Late-Breaking Research: CLINICAL/TRANSLATIONAL RESEARCH

Role of CYP2D6 Phenotypes in Doxorubicin-Related Cardiotoxicity

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BACKGROUND: Cardiotoxicity is a major adverse event of doxorubicin.[1] Doxorubicin is metabolized by CYP2D6 to doxorubicinol,[2] which is more cardiotoxic then doxorubicin.[3,4]
OBJECTIVE: To determine if increased CYP2D6 function will have an impact on the composite rate of cardiotoxicity or cardiomyopathy in patients who received doxorubicin.
METHODS: All patients who received intravenous conventional or liposomal doxorubicin between January 1, 2009, and December 31, 2021; were aged >18 years at the time of first doxorubicin administration; and had CYP2D6 genetic testing were included in our cohort. Patients were excluded from the study if they had a liver transplant before the administration of doxorubicin. Cardiomyopathy was defined as receiving a diagnosis in the medical record after the last doxorubicin dose or cardiomyopathy that occurred before doxorubicin was started but worsened after doxorubicin was completed. Worsening cardiomyopathy was defined as the reduction in left ventricular ejection fraction (LVEF) by ≥5%[5] or a QTc increase of ≥30 msec from baseline after doxorubicin treatment[6]. Cardiotoxicity was defined as a decrease of LVEF by ≥10% to a value ≤50% or a decrease in LVEF by ≥20% and/or a QT >500 msec after the

treatment or an increase in QTc by ≥60 msec from baseline[7]. Increased CYP2D6 function included CYP2D6 ultrarapid or rapid metabolizers. CYP2D6 function that was not increased was defined as poor, intermediate, or normal metabolizers. Liposomal doxorubicin cumulative doses were converted to conventional doses. Cumulative dosing was categorized into ≤250 mg/m^2 or >250 mg/m^2 [7]. Logistic regression models were used to measure the association between CYP2D6 function and cardiotoxicity.

RESULTS: A total of 238 patients met the study inclusion criteria. Of these patients, 8 (3.4%) had CYP2D6 increased function and 230 did not have CYP2D6 increased function. A total of 43 (18.1%) patients received a cumulative doxorubicin dose of >250 mg/m^2. There were 36 (15.1%) patients with cardiotoxicity and/or cardiomyopathy. in all, 3 (37.5%) patients among those with a CYP2D6 increased function had cardiotoxicity or cardiomyopathy, whereas 33 (14.3%) patients among those without a CYP2D6 increased function had cardiotoxicity or cardiomyopathy (unadjusted odds ratio [OR], 3.6; 95% confidence interval [CI], 0.7-15.3; *P*=.091). Adjusting for the cumulative doxorubicin dose, CYP2D6 function was not significantly associated with cardiotoxicity or cardiomyopathy (adjusted OR 3.9; 95% CI 0.8-17.1; *P*=.074).

CONCLUSION: This is the first study to analyze cardiotoxicity rates based on CYP2D6 function for patients who received doxorubicin. There were numerically increased rates of cardiotoxicity or cardiomyopathy in patients with increased CYP2D6 function; however, they were not statistically significant. This study was likely underpowered because of its small sample size.

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Late-Breaking Research: PRACTICE MANAGEMENT RESEARCH

Smart Solutions: Leveraging Artificial Intelligence in Investigational Drug Services

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BACKGROUND: Clinical research protocols are often complex, intricate, and lengthy documents and require the development of department-specific summaries to operationalize at the study site. Creating these summaries requires significant pharmacist time and effort. Incorporating artificial intelligence (AI) into this process may significantly decrease administrative burden and time while maintaining clinical accuracy.
OBJECTIVES: To assess the time required to complete pharmacy-specific study summaries manually versus AI-assisted and to assess the accuracy of documents created with AI assistance.
METHODS: As assessed by a scoring system, moderate- or high-complexity trials were eligible for inclusion. The time required for the manual preparation of pharmacy study summaries through usual workflow by the lead pharmacist for the study was recorded. Microsoft Copilot was prompted to complete a study summary template using the study protocol and pharmacy manual. The resulting AI-assisted summary was reviewed by an investigational drug service (IDS) pharmacist who was naïve to the study protocol. The time taken by an IDS pharmacist to complete the document was compared with the time taken by an IDS pharmacist assisted with AI. A mean difference of 20 minutes was defined as significant a priori. The number of corrections and grades of error were recorded for each study.
RESULTS: A total of 4 protocols were summarized manually and AI-assisted in parallel. The mean time to complete a study summary with AI assistance was significantly lower than manual summarization (35 minutes vs 167 minutes, respectively; P=.0296). There was an average 74% reduction in the time to complete the study summaries using AI-assisted workflow. Each initial prompt output required an average of 4.5 corrections.

DISCUSSION: In this case, the burden of time-consuming creation of documentation was mitigated by utilizing predesigned prompts to create standardized document output. Although manual reprompting and quality control were required to correct major errors, improvements in the prompt model and automation may further reduce manual effort.

CONCLUSION: The integration of AI into the clinical trial workflow significantly reduced the time to synthesize a study summary document when compared with traditional, manual processes.