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Development of a Discrete Choice Experiment Survey to Assess Patient Preferences for Treatment of Metastatic Breast Cancer

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Objective

- To evaluate the interpretability and relevance of a discrete choice experiment (DCE) survey developed to assess treatment preferences among patients previously treated for estrogen receptor-positive (ER+), human epidermal growth factor receptor 2-negative (HER2-) metastatic breast cancer (MBC) using a patient pretest survey

Key Findings

- Patients reported that the pretest survey clearly communicated treatment attributes, with minor refinements suggested and implemented
- Treatment attributes and their assigned levels were perceived by patients as relevant to their cancer treatment, and their prior experiences and/or expectations
- Patients were able to distinguish among treatment attributes and make trade-offs, supporting the feasibility and interpretability of the DCE design

Conclusions

- Findings from patient pretest interviews support the relevance of the DCE survey for capturing patient treatment preferences in MBC
- Insights gathered from the patients surveyed confirm their willingness to engage in discussions of treatment attributes and trade-offs and affirm the structure of our larger DCE study (planned to include 200 patients in the United States)

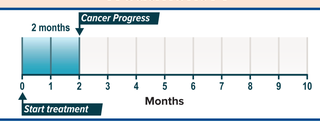
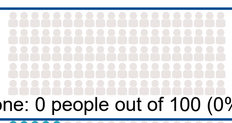
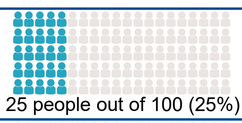
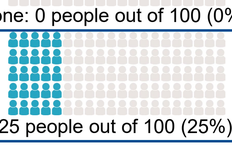
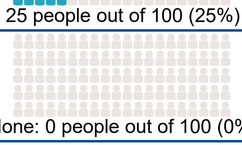
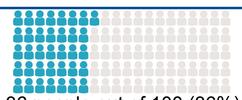
Background

- Breast cancer is the most prevalent cancer among women and ER+/HER2- disease accounts for approximately 70% of breast cancer cases[1,2]
- Cyclin dependent kinase (CDK) 4/6 inhibitors combined with endocrine therapy (aromatase inhibitors or fulvestrant) are considered standard first-line treatment for ER+/HER2- MBC[3,4]
- Second-line treatment decisions depend on prior response, mutation status, and patient preference[2-5]
- Patient preferences for treatment attributes, such as efficacy (ie, progression-free survival [PFS]), adverse event (AE) profiles, mode and frequency of administration, and effects on daily functioning, are highly individualized[6-8]
- Patient involvement in treatment decisions improves satisfaction, adherence, and outcomes[7-8]
- DCEs are quantitative surveys that present hypothetical treatment scenarios with varying attributes (eg, efficacy, AEs, administration) and allow researchers to quantify the relative importance of attributes and trade-offs that patients are willing to make, including for treatments still in development[9]

Methods

- We developed a DCE survey in which patients respond to questions designed to elicit preferences and trade-offs that patients are willing to make between different attributes of MBC treatments, including efficacy (PFS), risk of AEs (hyperglycemia, gastrointestinal symptoms, rash, mouth sores), and mode (oral, injection, both) and frequency of administration (daily, twice daily, monthly)
- An example DCE question with attributes of 2 hypothetical treatments is shown in **Figure 1**
- We tested the survey design by conducting semistructured, pretest interviews of adults with a confirmed diagnosis of ER+/HER2- MBC and previous treatment with ≤2 lines of therapy for MBC
- Interview moderators solicited patient reactions to the clarity and relevance of draft questions, discussing the patient's current treatment journey, and debriefing on choice-question comprehension and prioritization of various treatment attributes

Figure 1: Sample DCE question

Treatment Feature	Treatment A	Treatment B
Length of time, on average, until the cancer starts to progress again **Levels Tested:** 2, 4, 7, or 10 months		
How you take the cancer treatment **Levels Tested:** Oral once daily, 2 injections once monthly, oral once daily and 2 injections once monthly, 2 orals once daily, and 2 injections once monthly	 Oral tablet once daily	 2 injections once a month
Proportion of patients who have severe rash because of this treatment **Levels Tested:** 0%, 1%, 12%, or 25% risk	 None: 0 people out of 100 (0%)	 25 people out of 100 (25%)
Proportion of patients who have moderate to severe nausea and diarrhea because of this treatment **Levels Tested:** 0%, 9%, 16%, or 25% risk	 25 people out of 100 (25%)	 None: 0 people out of 100 (0%)
High blood sugar because of this treatment **Levels Tested:** None, Mild, Moderate, Severe	Mild	None
Proportion of patients who develop mouth ulcers because of this treatment **Levels Tested:** 0%, 8%, 22%, or 36% risk	 None: 0 people out of 100 (0%)	 36 people out of 100 (36%)
Which treatment would you choose?	☐	☐

DCE=discrete choice experiment.

Results

Patient characteristics

- Among the 15 patients interviewed during the pretest phase of the DCE, most had been diagnosed with MBC within the previous 5 years; 1 patient had de novo MBC; all others were initially diagnosed in early stages (**Table 1**)
- Bone metastases were common (80%; **Table 1**)
- All patients had received ≥1 prior line of therapy for MBC (oral: n=15; injectable: n=12; **Table 1**)
  - The most common prior or current treatments were hormonal therapies
  - Current or prior cyclin dependent kinase (CDK) 4/6 inhibitor therapy was also common (80%)

Table 1: Demographics and disease characteristics

Characteristic		Patients (n=15)
Age, years, mean (SD)		53.8 (7.9)
Year of MBC diagnosis[a], n (%)	2012-2018	2 (13.3)
	2019-2021	6 (40.0)
	2022-2024	7 (46.7)
Region of metastases, n (%)	Bone	12 (80.0)
	Liver	4 (26.7)
	Lymph nodes	4 (26.7)
	Lungs	1 (6.7)
	Ovaries	1 (6.7)
	Skin	1 (6.7)
	Other	1 (6.7)
Previous or current treatment for MBC, n (%)	Oral	15 (100)
	Injectable	12 (80.0)
Previous treatments received, n (%)	Hormonal therapy	12 (80.0)
	CDK 4/6 inhibitor	7 (46.7)
	LHRH agonist	4 (26.7)
	Targeted therapy	2 (13.3)
	Other	3 (20.0)
Current treatment regimen, n (%)	Hormonal therapy	15 (100)
	CDK4/6 inhibitor	12 (80.0)
	LHRH agonist	3 (20.0)
	Targeted therapy	1 (56.7)
	Other	9 (60.0)
Time on current treatment, n (%)	7 months to <2 years	5 (33.3)
	2 to <3 years	2 (13.3)
	3 to <4 years	3 (20.0)
	4 to 5 years	2 (13.3)
	>5 years	3 (20.0)
Ever enrolled in a clinical trial, n		0
Need to travel to the clinic to receive anticancer treatment, n (%)		9 (60.0)
Average travel time, n (%)	15 to <30 minutes	3 (33.3)
	30 to <60 minutes	2 (22.2)
	60 to 120 minutes	4 (44.4)

CDK4/6=cyclin dependent kinase 4/6; LHRH=luteinizing hormone-releasing hormone; MBC=metastatic breast cancer.
[a]This question was answered only by respondents who were not diagnosed with stage IV breast cancer at the time of their initial diagnosis.

Survey insights from pretest interviews

- When presented with DCE treatment attributes and levels and asked about their interpretability, patients reported that the definitions used were clear, relevant, and aligned with their understanding and expectations of MBC treatments, even if they had not experienced these attributes themselves
  - Minor refinements were suggested and will be implemented in the final survey instrument
- Most patients were familiar with or had experience with the routes of administration and AEs included in the survey (**Figure 2**)
- We observed patients making trade-offs across the attributes while completing the DCE tasks
- PFS was not assessed at this step because all patients had experienced disease progression; however, the PFS description in the survey was well understood
  - Amongst the patients surveyed, PFS was generally felt to be the most impactful attribute of a treatment choice
  - When PFS was similar across treatments, then other attributes were considered

Figure 2: Patient experience with attributes assigned in DCE

Values shown are number of patients (%). DCE=discrete choice experiment; MBC=metastatic breast cancer.

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