APPLYING A DISCRETE CHOICE EXPERIMENT METHODOLOGY TO ELICIT TREATMENT PREFERENCES FOR PATIENTS WITH TRICUSPID REGURGITATION

MSR70

Vijay Iyer, MD, PhD[1]; Nadeen N Faza, MD[2]; Michael Pfeiffer, MD[3]; Mark Kozak, MD[3]; Brandon Peterson, MD[3]; Mortiz Wyler von Ballmoos, MD, PhD, MPH[3]; Sarah Mollenkopf, MPH[4]; Melissa Mancilla, MBA[4]; Diandra Latibeaudiere-Gardner, MPH[5]; Michael Reardon, MD[2]

1 Division of Cardiology, Buffalo General Medical Center, Buffalo, NY, 2 Houston Methodist DeBakey Heart and Vascular Center, Houston Methodist Hospital, Houston, TX, 3 Division of Cardiology, Penn State Heart and Vascular Institute, Hershey, PA, 4 Edwards Lifesciences, Irvine, CA, 5 ICON Clinical Research Limited, London, UK

BACKGROUND

- Tricuspid regurgitation (TR) is a high prevalence disease associated with poor quality of life and mortality.
- A quantitative patient preference study using a discrete choice experiment (DCE) was applied to gain an understanding of TR patients' willingness to undergo a transcatheter tricuspid valve replacement or repair procedure versus medical management based on prescribed risk-benefit profiles for each treatment.
- **Improved understanding of this patient population and their treatment preferences can inform decision making in therapy development, trial design, and patient communication for this disease process.**

METHODS

- A list of DCE survey attributes and levels was identified from a targeted literature review. FDA, physician, patient, and manufacturer input was gathered to assess attribute relevance.
    - **Five attributes were chosen with two to four levels.**
- A D-efficient main-effects experimental design systematically chose three blocks of eight paired comparisons.
    - **Patients randomly viewed eight scenarios presenting a choice between two treatment profiles.**
- A mixed logit (MXL) regression model analyzed the DCE choice data to estimate patient treatment preferences.
    - The MXL accounts for the panel nature of the data and unobserved preference heterogeneity.
- The relative attribute importance (RAI) was calculated for the MXL.
    - **RAI provided a ranking for the attributes with higher ranked attributes more important to the decision-making process.**

Figure 1: Final DCE Attributes and Levels

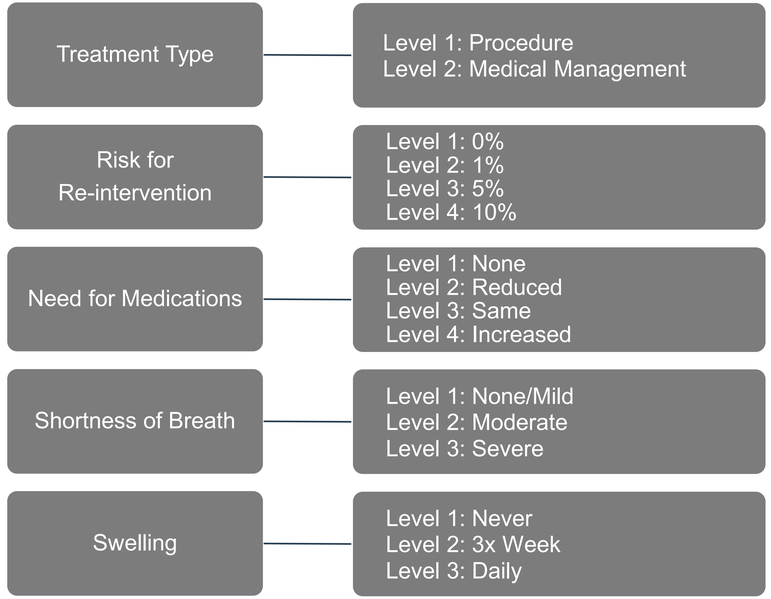

Table 1: Relative Attribute Importance (RAI)

Attribute	Rank	Relative Importance Weight	95% CI
Shortness of breath	1	65.8%	(58.4%, 73.2%)
Treatment Type and Risk of Re-intervention	2	13.8%	(7.5%, 20.2%)
Swelling	3	10.7%	(5.6%, 15.7%)
Need for Medications	4	9.7%	(3.9%, 15.6%)

RESULTS

- The DCE approach was successful because it showed statistically significant differences in preferences between attributes.
    - A more invasive procedure with more risk of re-intervention at a 5% (p=0.006), or 10% (p=0.002) level was less preferred than a less invasive procedure with 0% risk of re-intervention.
    - An increased number of medication in 2 years (p=0.009) was less preferred than no medication.
    - Moderate (p=<0.001) or severe (p<0.001) shortness of breath was less preferred than no/mild shortness of breath.
    - Swelling every morning (p=0.001) was less preferred than no swelling.
- **Shortness of breath was a dominant, most important attribute, contributing to 66% of treatment decision making.**
    - All other attributes had overlapping RAI confidence intervals and contributed somewhat equally to patients' treatment decisions.

LIMITATIONS

- A limitation of any DCE study is that only a subset of all possible attributes distinguishing different treatments can be assessed.
- The DCE itself may have been too complex/difficult for some participants and could have an affect on the data quality.

CONCLUSIONS

A DCE survey is a robust and effective tool in understanding TR patients' priorities when considering treatment.