



Memorial Sloan Kettering
Cancer Center

Patient-Reported Outcomes from the ECD Registry

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Overview

- Structure of ECD Registry
- Enrollment update
- ECD Symptom Scale, findings
- Quality of life and other Patient-Reported Outcomes (PROs)



ECD Registry Study

- Longitudinal observational study of ECD patients
- Clinical/Radiologic/Pathologic data
- Patient-reported outcomes (PRO) data
- Housed at MSK, although any patient can enroll
- Mirrored at Newcastle University (UK)



ECD Registry Study Objectives

- Collect high-quality comprehensive longitudinal data about ECD patients
- Clinical, radiologic, pathologic
- Response to treatment
- Resource to the entire ECD clinical and research community
- Patient-centered: symptoms, quality of life, supportive care needs
- Reported by patients themselves



Clinical Data

- Comprehensive set of data elements (record review by research nurse)
 - Presenting symptoms
 - Presenting clinical/radiologic findings
 - Laboratory findings
 - Pathology, mutational data
 - Treatment information and responses
- Dataset for diagnosis, enrollment, follow-up
- Follow-up at 6, 12, 24, 36 months
- Clock is re-set by change in treatment



Radiologic Data

- Scans from presentation and diagnosis are reviewed by
 - Nuclear med + diagnostic radiologist
 - Neuroradiologist (MRI brain, spine, neck)
- Sites of involvement are documented, target lesions are identified (metabolic and anatomic)
- Follow-up scans are reviewed for response



Pathologic Data

- Optional
- Slide review, MSK-IMPACT available on paraffin embedded tissue
- dPCR for BRAFV600E on cell-free DNA from blood
- ~120 gene panel on cell-free DNA from blood (coming soon)
- Free, telephone consent, generates a clinical report



Registry Data and Format

- REDCap platform
- Web-based, adaptive design survey-like entry with logic structure
- Easy to query for particular variables
- Exportable to excel, other formats without PHI



Use of Registry Data

- NOT restricted to MSK
- Governance shared with ECDGA
- Analysis is technically not the Registry study
- Data sharing possible by way of MTA and then adding partnering institution to data analysis protocol
- Intended to be resource for ECD community



Patient-Reported Outcomes

- Goal: capture systematic and high-quality data about how ECD patients live
- How do treatments effect symptoms, quality of life, overall all-being
- How can we make our interventions more responsive to patients and families
- For rare diseases, PROs can become a critical component of assessing response to treatment



PRO Assessment battery

- ECD Symposium in Houston, 2015
- IRB-approved focus groups
- Subsequent conference calls with patient, caregiver, stakeholder advisors
- Goal 1: Generate an inventory of symptoms and tool for ECD symptom assessment
- Goal 2: Meaningful PRO battery for ECD



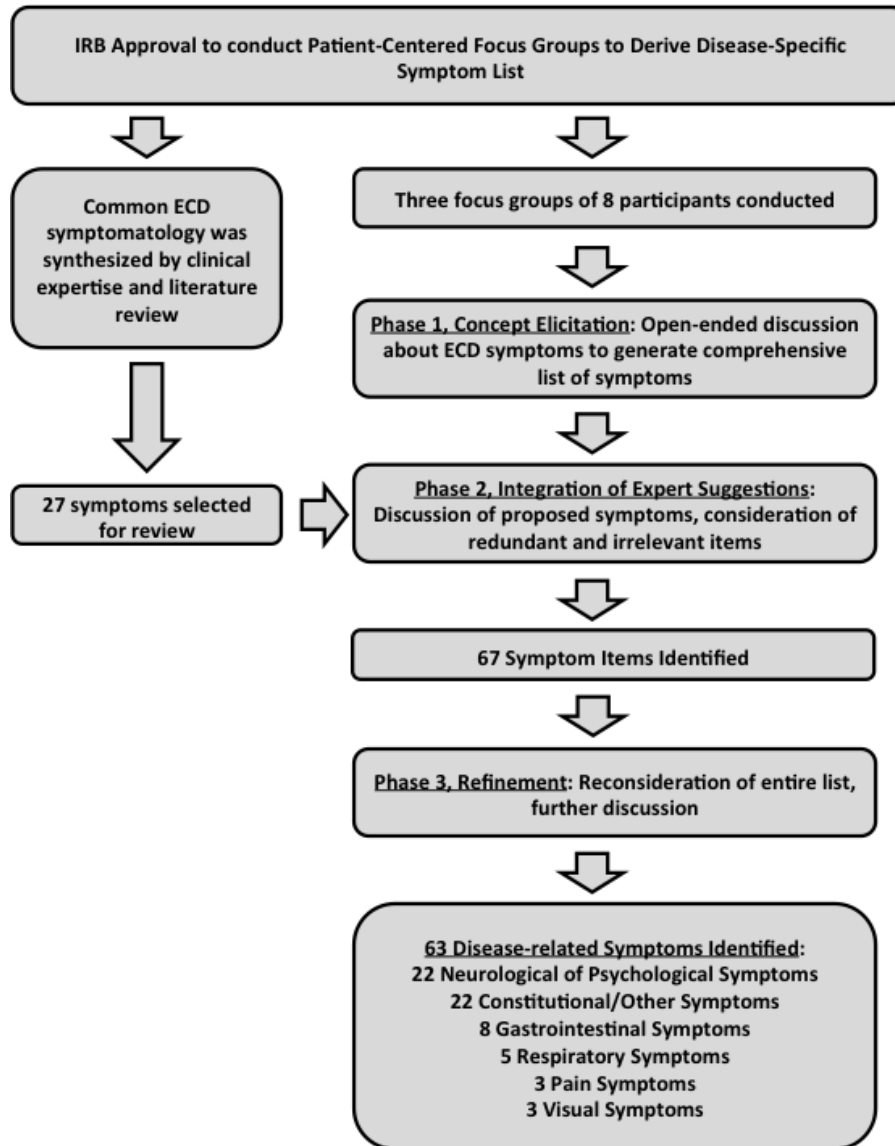
PRO Assessment battery

- ECD Symptom Scale (ECD-SS)
- Quality of life (FACT-G)
- Pain (Brief Pain Inventory)
- Fatigue (Brief Fatigue Inventory)
- Anxiety, Depression (Hospital Anxiety and Depression Scale)
- Supportive care needs (SCNS)
- Side effects of treatment (PRO-CTCAE)
- Activities of daily living (IADL)

- Collected at same timepoints as clinical data



ECD-SS



- All disease symptoms are checked on a list
- 5 most severe are designated as such and ranked
- For each
 - Severity scored 0-10
 - Frequency (categories)
- Total severity score 0-50
- Overall symptom severity is quantified
- Across different phenotypes
- Can measure change in particular symptoms or overall burden



Preliminary Results

- 91 patients enrolled
- ~60 completed survey batteries, ~20 follow-up
- Presented here are first 50 complete enrollment assessments
- Median age 56, range 18-77
- 28 (56%) men
- 46 (92%) white
- 27 (54%) treated at MSK
- 25 (50%) employed, 14 (28%) unemployed, 10 (20% retired)



Results from 50 Registry Participants

Disease location	N	%
Bone	36	72
Skin	8	16
Brain	23	46
Lungs	8	16
Heart	14	28
Kidneys	23	46
Eyes	16	32
Spine	9	18
Other	11	22

Treatment	N	%
BRAF inhibitory therapy	14	28
MEK inhibitor therapy	7	14
Combined BRAF/MEK therapy	6	12
Interferon	2	4
Anakinra	1	2
Other immunosuppression	6	12
Combined MEK/immunosuppression	1	2
No treatment	9	18
Unknown/not answered	4	8
Treatment	N	%
Targeted therapy	27	54
Conventional therapy	9	18
Combination targeted/conventional	1	2
No treatment	9	18
Unknown/not answered	4	8

Symptom Frequency

Neurologic or Psychological Symptoms	N	%
Memory problems (forgetfulness, repeating questions or statements)	26	52
Depression or sadness	25	50
Stress/anxiety	25	50
Trouble with balance or walking	25	50
Short tempered	21	42
Discouragement	19	38
Weakness of the arms or legs	18	36
Mood swings	17	34
Trouble with dexterity/coordination	17	34
Difficulty concentrating or paying attention	17	34
Numbness or tingling in hands or feet	15	30
Ringling in the ears (tinnitus)	14	28
Speech difficulties	13	26
Choking (while eating or drinking)	11	22
Difficulty swallowing	11	22
Dizziness	11	22
Head rush or light headedness or spinning sensation (vertigo)	10	20
Headache	8	16
Inappropriate crying	3	6
Inappropriate behavior	3	6
Personality changes	2	4
Inappropriate laughter	1	2

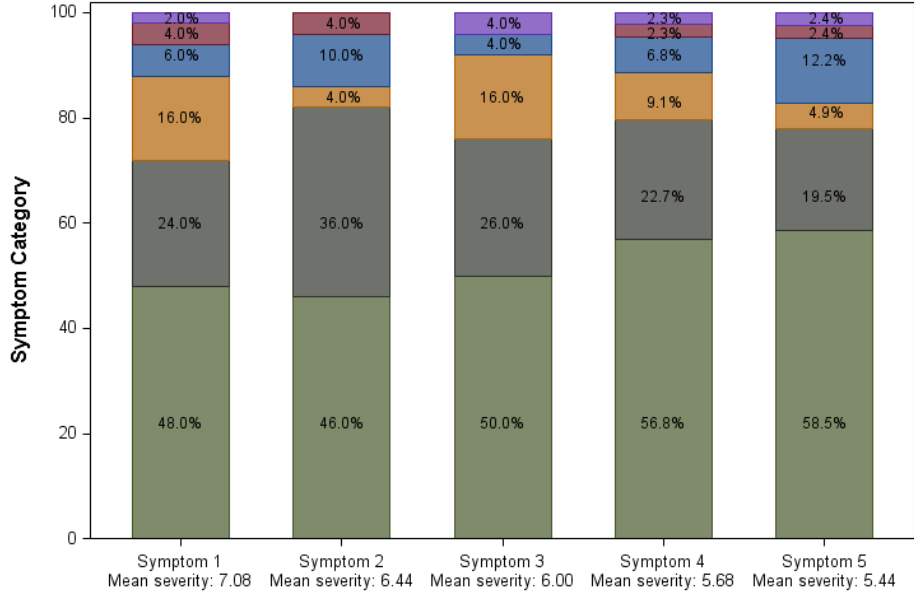
Symptom Frequency

Constitutional or Other Symptoms	N	%
Fatigue or sleepiness	36	72
Decreased sexual interest	16	32
Frequent or excessive urination	15	30
Insomnia or difficulty sleeping	14	28
Sudden urge to urinate	13	26
Night sweats	12	24
Inability to sleep due to pain	11	22
Itchy skin	11	22
Rash or skin problems	11	22
Frequent napping	10	20
Swelling of the arms or legs (edema)	10	20
Inability to drive	8	16
Hot flashes	7	14
Inability to sleep lying down	7	14
Problems tasting food	4	8
Changes in smell	3	6
Pounding or racing heart (palpitations)	3	6
Other problem that was not listed.	3	6
Fever	2	4
Hyperhidrosis (excessive sweating)	2	4
Urinary incontinence	2	4
Urinary tract pain	1	2

Symptom Frequency

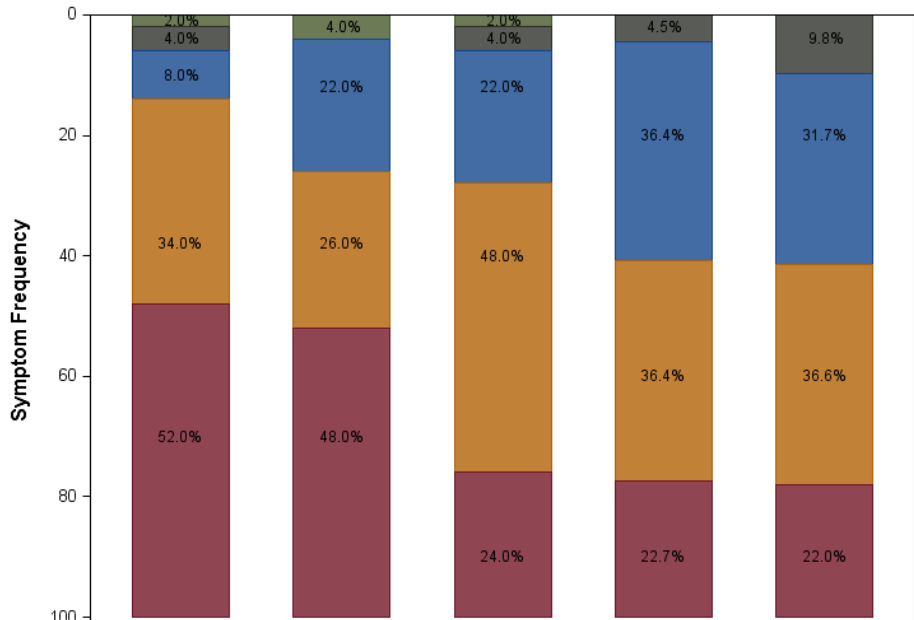
Gastrointestinal Symptoms	N	%
Dry mouth	15	30
Diarrhea	13	26
Abdominal Pain	10	20
Decreased appetite	7	14
Nausea	7	14
Dental problems	3	6
Ulcers or other stomach problems	1	2
Vomiting	0	0
Pain Symptoms	N	%
Aching bones or joints	28	56
Pain	18	36
Aching muscles	14	28
Visual Symptoms	N	%
Blurred vision	11	22
Changes in vision	6	12
Double vision	5	10
Respiratory Symptoms	N	%
Cough	9	18
Shortness of breath (in general)	7	14
Trouble breathing at night	3	6
Trouble breathing/shortness of breath (in general)	1	2
Hypoxia (low oxygen)	1	2

Symptoms, Severity, Frequency



Symptom Category

- Respiratory
- Vision
- Gastrointestinal
- Pain
- Constitutional or Other
- Neurological or Psychological



Frequency Category

- Never
- Rarely
- Occasionally
- Frequently
- Almost Constantly

Symptom	Mean	SD
Symptom 1	7.08	2.02
Symptom 2	6.44	2.10
Symptom 3	6.00	2.47
Symptom 4	5.68	1.77
Symptom 5	5.44	2.48
Total Score	31.39	8.33
Pain (BPI)	4.95	1.88
Fatigue (BFI)	4.97	2.14

Mood, Quality of life, Daily Function

Total Depression Score	N	%
0-7 (Normal)	37	74
8-10 (Mild)	4	8
11-14 (Moderate)	6	12
15+ (Severe)	3	6

Total Anxiety Score	N	%
0-7 (Normal)	35	70
8-10 (Mild)	9	18
11-14 (Moderate)	5	10
15+ (Severe)	1	2

Functional Impairment	N	%
Telephone	0	0
Shopping	22	44
Food Prep	15	30
Housekeeping	1	2
Laundry	7	14
Transportation	11	22
Medication	1	2
Finances	1	2

Quality of Life Domain	Total Score		
	Average Score	Standard Deviation	Score Range
Physical Well-Being	19.21	5.99	0.00-28.00
Social/Family Well-Being	18.84	6.22	0.00-28.00
Emotional Well-Being	16.23	4.40	0.00-24.00
Functional Well-Being	15.79	7.06	0.00-28.00
Total	69.14	18.38	0.00-108.00

- 26% have depressed mood
- 30% have anxiety
- Average overall quality of life is comparable to a cancer patient spending 50% of time in bed
- QOL impairments across physician and psychological domains
- Despite the above, relatively intact daily function

Supportive Care Needs

Domain of Supportive Care Need	N(%)
Pain	21 (42)
Lack of energy/tiredness	31 (65)
Feeling unwell a lot of the time	22 (44)
Work around the home	27 (54)
Not being able to do things you used to do	34 (68)
Anxiety	21 (42)
Feeling down or depressed	20 (41)
Feelings of sadness	22 (44)
Fears about the cancer spreading	26 (52)
Worry that the results of treatment are beyond your control	24 (48)
Uncertainty about the future	31 (65)
Learning to feel in control of your situation	25 (50)
Keeping a positive outlook	18 (36)
Feelings about death and dying	17 (34)
Changes in sexual feelings	21 (45)
Changes in your sexual relationships	19 (41)
Concerns about the worries of those close to you	32 (64)
More choice about which cancer specialists you see	15 (30)
More choice about which hospital you attend	14 (28)
Reassurance by medical staff that the way you feel is normal	11 (23)
Hospital staff attending promptly to your physical needs	10 (20)
Hospital staff acknowledging, and showing sensitivity to, your feelings and emotional needs	12 (24)
Being given written information about the important aspects of your care	14 (29)
Being given information about aspects of managing your illness and side effects at home	12 (24)
Being given explanations of those tests for which you would like explanations	16 (32)
Being adequately informed about the benefits and side-effects of treatments before you choose to have them	13 (27)
Being informed about your test results as soon as feasible	15 (30)
Being informed about cancer which is under control or diminishing (that is, remission)	14 (28)
Being informed about things you can do to help yourself get well	23 (46)
Having access to professional counseling if you, family, or friends need it	15 (30)
Being given information about sexual relationships	13 (28)
Being treated like a person not just another case	14 (28)
Being treated in a hospital or clinic that is as physically pleasant as possible	12 (24)
Having one member of hospital staff with whom you can talk to about all aspects of your condition, treatment, and follow up	17 (34)

ECD Caregivers (pilot data, N=14)

- Need for coordinated care, partnership, support with how ECD has changed the patient, relationships, their own future
- Anxiety and sadness
- Burnout
- Finding meaning and purpose
- Dedicated companion protocol 2019

Unmet Supportive Care Need for Caregiver	N(%) endorsing
Need for updated information about disease	7 (50%)
Need to feel like they were managing patient's health together with medical team	8 (57%)
Need for more coordinated care among patient's health providers	11(79%)
Need to manage side effects and complications of patient's treatments	10(71%)
Need help dealing with impact of the patient's disease on their workign life or usual activities	8(57%)
Need for emotional support	9(64%)
Need better tools to help support patient and family	10(79%)
Need to better manage additional responsibilities as a result of the patient's illness	8(57%)
Need help dealing with changes that disease has caused in the patient	11(79%)
Need help dealing with impact that disease has had on the relationship with the partners	12(86%)
Need help coping with trying to make decisions about their own life in the context of uncertainty	9(64%)
Psychological state	
Anxiety (severity 5 out of 10 or greater)	5(36%)
Sadness (severity 5 out of 10 or greater)	6(43%)
Worry (severity 5 out of 10 or greater)	7(50%)
Deel drained due to caring for patient (severity 5 out of 10 or greater)	9(64%)
Deel drained due to caring for patient (severity 5 out of 10 or greater)	9(64%)
Meaning and Purpose	
Feeling that providing care gives life meaning and purpose	12 (86%)
Feel good about themselves as a person	11 (79%)
Caring about the patient is important to them	12 (85%)

Conclusions

- PRO assessment in ECD reveals a wide array of previously unappreciated, although not surprising, symptoms
- Significant burden of neurologic and psychologic symptoms, unmet supportive care needs, diminished quality of life
- *Treated* patients
- Greater enrollment will allow for identification of predictors of better worse outcomes
- Potential for incorporation of PROs into clinical care, and therapeutic trials for patient-centered response assessment



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