Disease Characteristics Associated with Cushing's Disease: A Multi-Center US Study

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BACKGROUND

- An ongoing European Registry on Cushing's syndrome (CS), ERCUSYN,[1] is gathering data on clinical features, diagnostic procedures and therapeutic strategies in patients with CS.
- Our overarching goal was to gather data on occurrence of signs, symptoms, comorbidities, health care service use, diagnostic and treatment pathways in Cushing's disease (CD) patients in the US.

OBJECTIVE

- In the current presentation, we describe the pretreatment prevalence of signs, symptoms, and comorbidities in CD patients in the US, comparing results with the European registry, ERCUSYN.

METHODS

Study Design

- Data were collected from medical records at 8 US pituitary/endocrine centers, including major referral centers and regional/local centers, selected based on adequate number of CD patients treated, geographic location, and diversity of patient populations.
- The study was approved by the Institutional Review Boards at each site.

Patient Selection

- Patients with initial CD diagnosis or recurrence during the past 20 years and who were ≥18 years old at the time of diagnosis were included in the study.

Data Collection

- Each site identified eligible patients, and trained site abstractors entered data via a secure electronic case report form.
- Data were collected from the time of presentation through 2014.
- Data quality checks for content, inconsistencies, and missing entries were performed daily.

Measures

- Signs, symptoms, and comorbidities recorded at any time during the pretreatment period (on or before the first CD therapy).
- Disease characteristics were defined by pooling conceptually similar signs, symptoms, and comorbidities recorded during the pretreatment period to make comparisons to pituitary-dependent CS patients in ERCUSYN.
- CD treatments: initial pituitary surgery for CD; radiotherapy, pharmacotherapy, and adrenalectomy done at any time after CD diagnosis.

Statistical Analysis

- Patient characteristics were reported in the full sample and in the pretreatment subgroup (patients with CD-related signs, symptoms, and comorbidities documented in the medical records on or before the first CD therapy).
- Prevalence of signs, symptoms, comorbidities, disease characteristics, and weight were reported in the pretreatment subgroup.
- All statistical analyses were performed using SAS® version 9.4 (SAS Institute, Cary, NC).

RESULTS

Patient Characteristics

- By 1/15/15, data regarding 163 patients with a mean age of 47.1 (range: 23–85) years had been entered in the database so far, and formed the basis of this analysis.

Characteristics	All, N=163
Current age, year, mean (SD)	47.1 (13.3)
Median, range	46 (23-85)
≤34, n (%)	31 (19.0)
35-44, n (%)	43 (26.4)
45-54, n (%)	45 (27.6)
55-64, n (%)	26 (16.0)
65+, n (%)	18 (11.0)
Age at diagnosis, year, mean (SD)	40.8 (13.2)
Median, range	40 (18-78)
Female, n (%)	129 (79.1)
Race, n (%)	
White	111 (68.1)
African American	10 (6.1)
Hispanic or Latino	24 (14.7)
Private Insurance	129 (79.1)
Medicare or Medicaid	16 (9.8)
Uninsured	10 (6.1)

Prevalence of Signs, Symptoms, and Comorbidities Occurring before Initial Treatment for CD

Prevalence of Signs, Symptoms, and Comorbidities Occurring before Initial Treatment for CD (n=106)					
Signs	**n (%)**	**Symptoms**	**n (%)**	**Comorbidities**	**n (%)**
Facial plethora	52 (49.1)	**Weight gain**	76 (71.7)	**Hypertension**	74 (69.8)
Facial rounding	52 (49.1)	**Easy bruising**	54 (50.9)	**Hyperlipidemia**	48 (45.3)
Fat pads, posterior cervical	50 (47.2)	**Fatigue**	46 (43.4)	**Diabetes, type 2**	33 (31.1)
Striae	50 (47.2)	**Muscle weakness**	42 (39.6)	**Obesity**	32 (30.2)
Fat pads, supraclavicular	49 (46.2)	**Excessive hairiness/ hair growth**	40 (37.7)	**Depression**	24 (22.6)
Obesity, central	38 (35.8)	**Stretch marks**	31 (29.2)	**Anxiety**	17 (16.0)
Hirsutism	26 (24.5)	**Headaches**	30 (28.3)	**Sleep apnea**	12 (11.3)
Obesity, general	25 (23.6)	**Anxiety**	27 (25.5)	**Pre-diabetes**	11 (10.4)
Bruising	22 (20.8)	**Acne**	22 (20.8)	**Osteoporosis**	9 (8.5)
Thin skin	21 (19.8)	**Plethora**	22 (20.8)	**Osteopenia**	8 (7.5)
		Depression	21 (19.8)	**Nephrolithiasis**	8 (7.5)

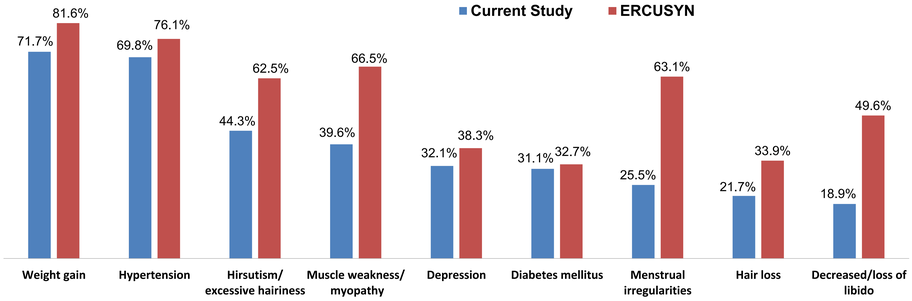
Treatment for CD

- First-line treatment was pituitary surgery in 156 patients (95.7%).
- Treatment during CD care: radiotherapy (n=22; 13.5%) , pharmacotherapy, (44; 27.0%) and adrenalectomy (11; 6.7%).

Comparison between Pretreatment Subgroup and Pituitary-dependent CS Patients in ERCUSYN

- There were 77.4% females in the pretreatment subgroup in our study vs. 81.1% in ERCUSYN.
- Mean age (SD) at diagnosis in our study was 42.3 (13.4) (range: 18–78) vs. 42.7 (13.5) (range: 15–84) in ERCUSYN.
- In both studies, the patients were either overweight or obese. Mean (SD) weight in current study, in which the majority of patients were females, was 210.3 lbs. (55). Mean body mass index (SD) in ERCUSYN was 30.9 (7.1).

Comparison of Disease Characteristics Reported in Both Studies



LIMITATIONS

- The current study has a smaller sample size than the ERCUSYN study (n=317), however, data collection is ongoing to a target sample size of approximately 250 patients.

CONCLUSIONS

- This sample is comparable in distribution of demographic characteristics and clinical features to ERCUSYN, except for our inclusion of race/ethnicity and slightly different frequencies of common disease characteristics, although the two studies differed in study design, methods, and setting.
- Our results underscore the substantial comorbidity burden associated with CD.
- The data collection is ongoing, and future work will include a variety of analyses using this database, including a comprehensive review of the burden-of-illness, treatment pathways, and association of biochemical control and clinical outcomes.

References

1. Valassi E, Santos A, Yaneva M, et al; ERCUSYN Study Group. The European Registry on Cushing's syndrome: 2-year experience. Baseline demographic and clinical characteristics. Eur J Endocrinol. 2011 Sep;165(3):383-92. doi: 10.1530/EJE-11-0272. Epub 2011 Jun 29. PubMed PMID: 21715416.

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