RWD130

Differences in Healthcare Resource Utilization for the Management of Immunoglobulin A Nephropathy in Europe, the US, China and Japan

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Introduction

- Immunoglobulin A nephropathy (IgAN) is the most common primary glomerulonephritis worldwide, with an annual incidence of ~25 per million[1].
- Patients with IgAN commonly present with proteinuria, hematuria, hypertension and deteriorating kidney function[2,3], which can lead to a need for the utilization of healthcare resources during consultation, tests/assessments, hospitalization, dialysis and kidney transplantation.
- Data on healthcare resource utilization (HCRU) among patients with IgAN are not well documented in the literature. To address this data gap, a real-world study was conducted to obtain HCRU data in patients with IgAN.
- This analysis aimed to describe HCRU among patients with IgAN across four geographical regions.

Methods

- The Adelphi IgAN Disease Specific Programme (DSP) was a point-in-time survey of IgAN-treating nephrologists in France, Germany, Italy, Spain and the United Kingdom (EU5), the United States (US), China, and Japan between June and October 2021.
- The DSP methodology has previously been published in detail[4].
- Ethics exemption was obtained from the Pearl Institutional Review Board and Hospital Clínic de Barcelona.
- Nephrologists completed online records for successive patients with IgAN, including consultation history, tests/assessments, hospitalizations, dialysis and kidney transplantation.
- All analyses were descriptive.

Results

- Nephrologists (n=295) completed records for 1792 patients (EU5: n=618, US: n=305, China: n=587, Japan: n=282). Mean patient age was 43.6 years, 59% were male (**Table 1**).
- Median time from IgAN diagnosis (with biopsy or other method) to the time of survey was 2.0 years. This was longer in Japan (3.1 years) and EU5 (2.7 years) compared to US (1.4 years) and China (1.4 years) (**Table 1**).

Consultations

- In the 12 months prior to survey, patients had a mean of 7.1 consultations; higher in Japan (9.1) compared to China (7.5), EU5 (6.5) and US (5.8). Of which, 5.6 consultations were with a nephrologist; higher in Japan (7.4) compared to other geographies (**Table 1**).

Tests or Assessments

- In the 12 months prior to survey, patients received a mean of 25.4 tests to monitor their IgAN (higher in China [35.4]); most commonly for blood pressure, serum creatinine and urinalysis for blood cells (**Table 1**).

Conclusions

- Differences in HCRU found in this study highlight differences in management of patients with IgAN across various geographies and which may impact on patient outcomes.
  - Patients in China and Japan consulted, were tested and hospitalized more frequently than in the EU5 and the US.
  - Larger number of patients in Japan received tonsillectomy compared to other geographies.
- Physicians expect nearly half of the patients with IgAN will require chronic dialysis in the future. Nearly one-fifth of the patients are deemed eligible to undergo a kidney transplant; of those one fourth of patients are on a waiting list.
- There is a clear unmet need for effective therapies that can reduce burden of IgAN on patients and healthcare systems.

Results

Table 1. Healthcare resource utilization data in patients with IgAN at the time of survey

	All Regions		EU5		US		China		Japan	
	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Patient age (years)	1792	43.6 (14.96)	618	45.0 (14.91)	305	44.7 (14.71)	587	39.8 (13.74)	282	47.1 (16.22)
	N	**n (%)**	**N**	**n (%)**	**N**	**n (%)**	**N**	**n (%)**	**N**	**n (%)**
Male patients	1792	1052 (59%)	618	413 (67%)	305	169 (55%)	587	329 (56%)	282	141 (50%)
	N	**Median (IQR)**	**N**	**Median (IQR)**	**N**	**Median (IQR)**	**N**	**Median (IQR)**	**N**	**Median (IQR)**
Time from diagnosis to the survey (years)	1700	2.0 (0.7-5.0)	583	2.7 (0.9-6.3)	285	1.4 (0.6-3.6)	569	1.4 (0.5-3.2)	263	3.1 (1.0-7.0)
	N	**Mean (SD)**	**N**	**Mean (SD)**	**N**	**Mean (SD)**	**N**	**Mean (SD)**	**N**	**Mean (SD)**
Consultations										
How many times has this patient seen each healthcare professional in the last 12 months for their IgAN?										
Total consultations	1792	7.1 (7.68)	618	6.5 (8.99)	305	5.8 (3.72)	587	7.5 (7.05)	282	9.1 (8.50)
Nephrologist overall (Including responding physician)	1792	5.6 (5.70)	618	4.4 (7.05)	305	3.8 (2.20)	587	7.0 (5.02)	282	7.4 (5.11)
Another nephrologist	1083	0.9 (2.88)	425	1.0 (3.85)	145	0.2 (0.61)	296	1.0 (2.14)	217	1.1 (2.34)
Urologist	1006	0.1 (0.62)	376	0.2 (0.60)	134	0.2 (0.64)	293	0.1 (0.79)	203	* (0.25)
Family doctor / GP / PCP	910	1.3 (2.25)	263	2.7 (2.64)	149	1.8 (1.63)	291	0.2 (1.53)	207	0.8 (1.98)
Nurse	890	0.5 (2.31)	309	0.6 (2.85)	110	0.7 (1.52)	290	0.1 (1.22)	181	0.8 (2.91)
Pharmacist	863	0.6 (2.09)	288	0.9 (2.25)	108	0.4 (1.30)	286	* (0.71)	181	0.9 (3.21)
Other physician	850	0.1 (1.00)	281	0.1 (0.47)	101	0.2 (0.66)	283	0.1 (1.62)	185	* (0.16)
Internal medicine/ internist	785	0.3 (1.06)	348	0.1 (0.53)	143	1.1 (1.61)	294	0.2 (1.05)	-	-
Tests or assessments in last 12 months										
Total tests/assessments	1741	25.4 (20.93)	608	17.8 (14.86)	280	15.1 (7.32)	576	35.4 (26.15)	277	31.6 (17.75)
Systolic blood pressure	1520	5.6 (4.24)	530	4.2 (3.71)	246	3.6 (1.68)	488	7.4 (4.70)	256	7.0 (4.18)
Diastolic blood pressure	1508	5.6 (4.25)	527	4.2 (3.73)	238	3.6 (1.66)	488	7.4 (4.70)	255	7.0 (4.18)
Serum creatinine	1500	4.8 (3.42)	524	3.6 (2.90)	233	3.4 (1.51)	477	5.9 (3.72)	266	6.4 (3.66)
Urinalysis for red blood cells	1352	4.7 (3.50)	422	3.0 (2.08)	223	3.0 (1.29)	463	6.3 (4.16)	244	6.3 (3.29)
24-hour protein urine measurement	897	4.4 (3.35)	301	3.0 (2.24)	38	2.2 (0.88)	520	5.5 (3.63)	38	2.6 (1.81)
Protein/creatinine ratio	822	4.5 (3.25)	242	3.3 (2.62)	209	3.2 (1.55)	124	5.4 (4.32)	247	6.2 (3.33)
24-hour creatinine clearance test	504	3.6 (2.91)	172	2.9 (2.18)	20	2.0 (1.00)	290	4.2 (3.21)	22	3.0 (3.05)
Serum IgA levels	422	3.3 (2.97)	155	2.2 (1.63)	21	1.5 (0.75)	198	4.4 (3.48)	48	3.3 (3.01)
Albumin/creatinine ratio	395	4.2 (3.55)	158	2.8 (1.43)	58	2.6 (0.99)	166	6.1 (4.59)	13	2.5 (1.76)
Serum IgG levels	263	3.8 (3.25)	77	2.2 (1.41)	12	1.8 (0.75)	154	4.9 (3.66)	20	2.2 (1.79)

Abbreviations: EU5: France, Germany, Italy, Spain and the United Kingdom; GP: General Physician; IgA: Immunoglobulin A; IgAN: Immunoglobulin A Nephropathy; IgG: Immunoglobulin G; IQR: Interquartile Range (1st-3rd Quartile); N: Total Number of Patients; PCP: Primary Care Physician; SD: Standard Deviation; US: United States; *Indicates value is less than 0.1

Figure 1. Hospitalizations (including surgery but excluding routine dialysis) among patients with IgAN in the last 12 months at the time of survey

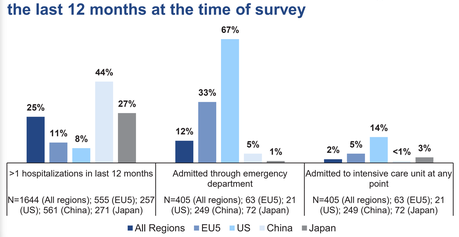
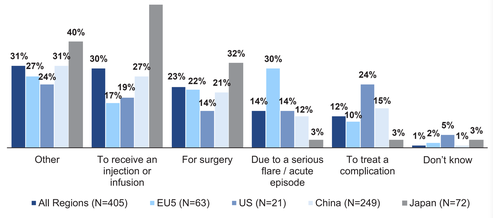


Figure 2. Reasons for admission of patients with IgAN into the hospital



Abbreviations: EU5: France, Germany, Italy, Spain and the United Kingdom; IgAN: Immunoglobulin A Nephropathy; N: Total Number of Patients; US: United States

Results

Hospitalizations

- Overall, 25% of patients were hospitalized due to IgAN in last 12 months prior to the survey (**Figure 1**) with a mean hospitalization of 1.7 per patient to treat IgAN.
  - Hospitalizations were more common and more frequent in China (44%, 1.8 mean hospitalizations per patient) and Japan (27%, 1.7) compared to EU5 (11%, 1.3) and US (8%, 1.1).
- Out of all hospitalized patients, 12% were admitted through the emergency department (ED) and 2% stayed in an intensive care unit (ICU) at any point during the hospitalization. This was higher in US (67% in ED; 14% in ICU) compared to other geographies (**Figure 1**).
- Specific reasons for hospitalization were to receive an injection or infusion (30%), to undergo a surgery (23%), due to a serious flare/acute episode (14%) and to treat a complication (12%) (**Figure 2**).
- Out of 1792 patients, 11% received tonsillectomy to treat IgAN. This was mostly driven by data from Japan (41%); rare in other geographies (China: 9%, US: 4% and EU5: 1%).

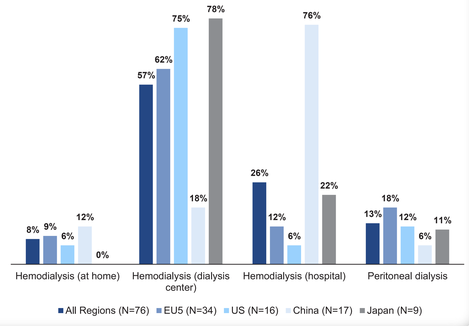
Dialysis

- At the time of survey, 4% of 1792 patients were on dialysis; higher in EU5 (6%) compared to other geographies (US: 5%, China: 3% and Japan: 3%).
- Physicians expected that 46% of 1565 patients who were not on dialysis would require it in the future; highest in US (52%) followed by China (50%) Japan (44%) and EU5 (41%).

Kidney Transplantation

- At the time of survey, 1% of 1792 patients had received a kidney transplant (EU5: 2%, US: 2%, China: <1% and Japan: 1%).
- Overall, 18% of 1768 patients were deemed eligible to receive a kidney transplant. This was highest in EU5 (32%) followed by US (30%), Japan (7%) and China (3%).
  - Of these 18% of patients, 25% were currently on a waiting list; highest in the US (29%) followed by EU5 (25%), China (20%) and Japan (5%).

Figure 3. Type of dialysis received by patients with IgAN at the time of survey



Limitations

- The DSP is not based on a true random sample of physicians or patients. While minimal inclusion criteria governed the selection of the participating physicians, participation is influenced by willingness to complete the survey.
- Physicians are asked to provide data for a consecutive series of patients to avoid selection bias, but no formal patient selection verification procedures are in place.
- There may be a potential for bias due to possible over representation of few patients in the survey as patients with more severe disease consulting physician more frequently.

Disclosures

- Data collection for the DSP was undertaken by Adelphi Real World as part of an independent survey and data is owned by Adelphi. Novartis is one of multiple subscribers to the DSP and supported this analysis.
- Richard Lafayette has received research funding from NIH, UMichigan, Omeros, Vera, Travere, Pfizer, Roche, Chinook, Alexion, Otsuka, Calliditas and NephroNet. He has provided consultancy for Alexion, Omeros, Vera, Travere, Pfizer, Roche, Calliditas, Chinook, Aurinia, GSK, Otsuka and Novartis.

References

1. McGrogan A et al. *Nephrol Dial Transplant*. 2011;26(2):414-430.
2. George AT et al. *Value in Health*. 2018;21(Supp 3):S480.
3. Tyagi N et al. *Value in Health*. 2019;22(Supp 3):S919.
4. Anderson P et al. *Current Medical Research and Opinion*. 2008;24(11):3063-3072.

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