Demographics, Prior Therapies, and Reasons for Cemiplimab Treatment: Prospective CemiplimAb-rwlc Survivorship and Epidemiology (C.A.S.E.) Study in Patients with Advanced Cutaneous Squamous Cell Carcinoma

Guilherme Rabinowits,[1] Jade Homsi,[2] Mina Nikanjam,[3] Rhonda Gentry,[4] John Strasswimmer,[5] Suraj Venna,[6] Michael R. Migden,[7] Sunandana Chandra,[8] Emily Ruiz,[9] Haixin R. Zhang,[10] Jennifer McGinniss,[10] Alex Seluzhytsky,[11] Jigar Desai[10]

[1]Department of Hematology and Oncology, Miami Cancer Institute/Baptist Health South Florida, Miami, FL, USA; [2]Division of Hematology/Oncology, University of Texas Southwestern Medical Center, Dallas, TX, USA; [3]Division of Hematology and Oncology, University of California San Diego, CA, USA; [4]CARTI Cancer Center, Little Rock, AR, USA; [5]College of Medicine (Dermatology) and College of Sciences (Biochemistry), Florida Atlantic University, FL, USA; [6]Inova Schar Cancer Institute Melanoma Center, Fairfax, VA, USA; [7]Departments of Dermatology and Head and Neck Surgery, University of Texas MD Anderson Cancer Center, Houston, TX, USA; [8]Division of Hematology Oncology, Northwestern University Feinberg School of Medicine, Chicago, IL, USA; [9]Brigham and Women's Hospital, Boston, MA, USA; [10]Regeneron Pharmaceuticals, Inc., Tarrytown, NY, USA; [11]Sanofi, Cambridge, MA, USA.

Synopsis

- Cutaneous squamous cell carcinoma (CSCC) is one of the most commonly diagnosed cancers worldwide and incidence rates are increasing.[1,2]
- Most early cases are typically treated with curative surgery.[3] However, a small percentage of patients develop locally advanced CSCC, that is not amenable to curative surgery or curative radiotherapy (RT).[4]
- Until recently, patients with advanced CSCC, who were not candidates for curative surgery or radiation, had poor prognosis.[5,6]
- Cemiplimab is a high-affinity, monoclonal antibody that blocks programmed cell death (PD)-1 binding to PD-ligand (L)1 and PD-L2 and has demonstrated substantial antitumor activity in patients with advanced CSCC.[4, 7-9]
- Cemiplimab (cemiplimab-rwlc in the US) is approved by the European Medicines Agency and is the first PD-1 inhibitor approved by the US Food and Drug Administration for the treatment of patients with locally advanced or metastatic CSCC who are not candidates for curative surgery or curative radiation.[10,11]
- Limited data exist on the clinical characteristics, management, disease progression and survivorship of patients with advanced CSCC in real-world clinical practice.

Objectives

- Patients receiving cemiplimab in the real world will likely have their treatment initiated at various timepoints and at different stages of their disease evolution.
- CemiplimAb-rwlc Survivorship and Epidemiology (C.A.S.E.) study aims to evaluate the effectiveness, safety, disease evolution, survivorship, and quality of life (QoL) in patients with advanced CSCC treated with cemiplimab in a real-world setting.
- Here, we describe baseline demographics for the first set of patients currently enrolled in the C.A.S.E. study.

Methods

- C.A.S.E. is a prospective, multicenter, longitudinal study evaluating the clinical activity, safety, disease evolution, survivorship, and QoL in adult patients with advanced CSCC who initiate treatment with cemiplimab, with the primary data collection in real-world clinical settings.
- Key endpoints include effectiveness of cemiplimab treatment, safety, patient-reported outcomes, treatment adherence, and health resource utilization.
- Patient-reported outcomes collected: The European Organisation for Research and Treatment of Cancer (EORTC) QoL questionnaire (QLQ-C30), EORTC QLQ-ELD14, Skin Care Index, Pain Numerical Rating Scale, and Sun Exposure Behaviour Inventory.
- Demographic and baseline data from the first set of patients enrolled in the C.A.S.E. study were analyzed and are presented here.

Results

Baseline demographics and disease characteristics

- As of January 31, 2020, 61 patients were enrolled (median age: 78.0 years [interquartile range: 70–86]); 73.8% were male and 96.7% were Caucasian (**Table 1**).

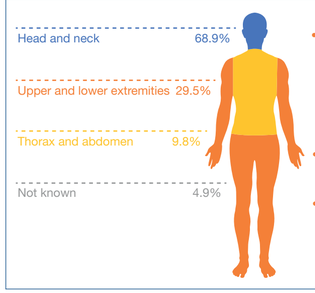
Table 1. Patients demographics

n (%)	Advanced CSCC (N=61)
Median age, years (range)	78.0 (50–98)
<65 years	9 (14.8)
≥65 – <75 years	16 (26.2)
≥75 – <85 years	19 (31.2)
>85 years	17 (27.9)
Male	45 (73.8)
Race, White	59 (96.7)
ECOG performance status	
0	14 (23.0)
1	35 (57.4)
2	4 (6.6)
Locally advanced CSCC	34 (55.7)
Metastatic CSCC	27 (44.3)

ECOG, Eastern Cooperative Oncology Group.

- Fifty-six percent of the patients had locally advanced CSCC and 44.3% had metastatic CSCC (**Table 1**).
- Approximately 20% of patients were immunocompromised or immunosuppressed, including 4.9% who had solid organ transplant (**Table 2**).
- The most common current CSCC tumor location was head and neck (68.9%) (**Figure 1**).

Figure 1. Summary of advanced CSCC in patients in real-world practice



- This initial demographic analysis of patients with advanced CSCC receiving cemiplimab in real-world practice indicate ~20% being immunosuppressed or immunocompromised to varying degrees.
- Only 54.1% of cases had multi-disciplinary input in their disease management.
- Data suggest there are varying factors affecting advanced CSCC treatment decisions in a real-world clinical setting.

- The majority of patients, for whom staging tool data were provided, were classified using the American Joint Committee on Cancer Staging Manual, 8th edition. The most common cancer stages at initial diagnosis were T3 and T4a (4.9% each).

Baseline tumor characteristics

- CSCC tumors were classified histologically as well differentiated in 23.0% of patients, moderately differentiated in 37.7%, poorly differentiated in 19.7%, and unknown in 19.7% (**Table 2**).
- Tumors in 21.3% of patients had perineural invasion and 8.2% had histological heterogeneity.

Prior therapies

- Most patients had received prior CSCC therapy, 75.4% had prior CSCC-related surgery, and 41.0% received CSCC-related RT (**Table 3**).

Multidisciplinary management and factors affecting cemiplimab treatment decisions

- Fifty-four percent of patients had multidisciplinary input in their advanced CSCC management.
- Reasons for cemiplimab treatment are shown in **Figure 2.**

Table 2. Patient and tumor characteristics

n (%)	Advanced CSCC (N=61)
Immunocompromised or immunosuppressed*	13 (21.3)
Solid organ transplant recipient	3 (4.9)
Extensive actinic keratosis	20 (32.8)
Perineural invasion	13 (21.3)
Histological differentiation	
Moderately differentiated	23 (37.7)
Well differentiated	14 (23.0)
Poorly differentiated	12 (19.7)
Unknown	12 (19.7)

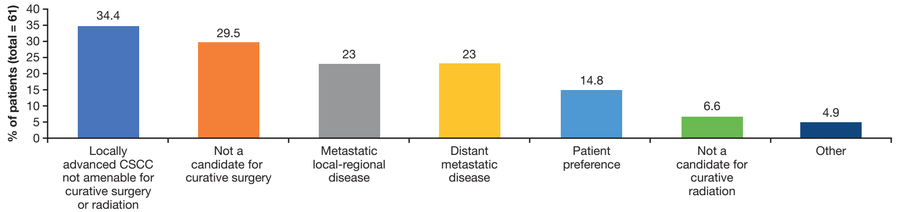
*Immunocompromised refers to patients who have an autoimmune disease, who have received a solid organ transplant, allogeneic bone marrow transplant, or who have a history of treated or active hematologic malignancies. Immunosuppression refers to patients with chronic steroid use or who use chronic immunosuppressive agents.

Table 3. Prior treatments

n (%)	Advanced CSCC (N=61)
Any prior CSCC surgery	46 (75.4)
Number of prior CSCC-related surgery	
1	17 (27.9)
2	14 (23.0)
3	6 (9.8)
>3	9 (14.8)
Any prior RT	25 (41.0)
Number of prior CSCC-related RT	
1	18 (29.5)
2	6 (9.8)
≥3	1 (1.6)
Without any prior CSCC systemic therapy (1L)	38 (62.3)
Any prior CSCC systemic therapy (2L+)	23 (37.7)
Prior systemic therapy setting	
Metastatic disease	12 (19.7)
Adjuvant	7 (11.5)
Chemotherapy with concurrent RT	2 (3.3)
Neoadjuvant	2 (3.3)
Number of prior CSCC systemic therapies	
1	15 (24.6)
2	5 (8.2)
≥3	3 (4.9)

1L, first-line; 2L, second-line.

Figure 2. Reasons for cemiplimab initiation*



*More than one reason for cemiplimab initiation could be given for a single patient.

Summary and Conclusion

This initial demographic analysis of patients with advanced CSCC receiving cemiplimab in real-world practice indicates that most patients were male and elderly, with ~20% being immunosuppressed or immunocompromised to varying degrees.

Only 54.1% of cases had multi-disciplinary input in their disease management.

These data suggest that there are varying factors affecting advanced CSCC treatment decisions in a real-world clinical setting.

Future analyses will provide additional outcome measures from C.A.S.E. including patient experience, safety outcomes, and effectiveness of cemiplimab in the real-world setting.

References

1. Rogers HW et al. *JAMA Dermatol*. 2015;151:1081–1086.
2. Leiter U et al. *J Invest Dermatol*. 2017;137:1860–1867.
3. Jennings L and Schmults CD. *J Clin Aesthet Dermatol*. 2010;3:39–48.
4. Migden MR et al. *N Engl J Med*. 2018;379:341–351.
5. Schmults CD et al. *JAMA Dermatol*. 2013;149:541–547.
6. Weinberg AS et al. *Dermatol Surg*. 2007;33:885–899.
7. Burova E et al. *Mol Cancer Ther*. 2017;16:861–870.
8. Migden MR et al. *J Clin Oncol*. 2019;37:6015–6015.
9. Rischin D et al. *J Immunother Cancer*. 2020;8:e000775.
10. Regeneron Pharmaceuticals, Inc. LIBTAYO® [cemiplimab-rwlc] injection full US prescribing information. Available from: https://www.accessdata.fda.gov/drugsatfda_docs/label/2018/761097s000lbl.pdf. Accessed July 13, 2020.
11. European Medicines Agency. Libtayo: EPAR - product information. Available from: https://www.ema.europa.eu/en/documents/product-information/libtayo-epar-product-information_en.pdf. Accessed August 24, 2020.

Acknowledgments

The authors would like to thank the patients, their families, all other investigators, and all investigational site members involved in this study. The study was funded by Regeneron Pharmaceuticals, Inc. and Sanofi. Editorial writing support was provided by Jenna Lee of Prime, Knutsford, UK, funded by Regeneron Pharmaceuticals, Inc. and Sanofi.

Disclosures

Guilherme Rabinowits reports consulting/advisory role for EMD Serono, Pfizer, Sanofi, Regeneron Pharmaceuticals, Inc., and Merck and Castle, and stock/other ownership interests from Syros Pharmaceuticals and Regeneron Pharmaceuticals, Inc. **Jade Homsi** reports personal fees from Sanofi, Novartis, and Regeneron Pharmaceuticals, Inc. **Mina Nikanjam** reports support for running clinical trials from Regeneron Pharmaceuticals, Inc., and support for running industry-sponsored clinical trials from Idera Pharmaceuticals, BMS, Novartis, and Immunocore. **Rhonda Gentry** is a Principal Investigator for the C.A.S.E. Registry. **John Strasswimmer** reports a grant as an investigator for the clinical trial. **Suraj Venna** declares no conflict of interest. **Michael R. Migden** reports honoraria from Regeneron Pharmaceuticals, Inc., Sanofi, Novartis, Genentech, Eli Lilly, and Sun Pharma. **Sunandana Chandra** reports consulting/advisory role for Sanofi-Genzyme, Bristol-Myers Squibb, EMD Serono, Biodesix, Array BioPharma, Novartis, and Regeneron Pharmaceuticals, Inc., and other conflicts with Sanofi-Genzyme, Bristol-Myers Squibb, EMD Serono, Biodesix, and Regeneron Pharmaceuticals, Inc. **Emily Ruiz** reports consulting fees from Regeneron Pharmaceuticals, Inc., Leo Pharma, Checkpoint Therapeutics, and Pellepharma. **Haixin R. Zhang, Jennifer McGinniss, and Jigar Desai** are employees and stockholders of Regeneron Pharmaceuticals, Inc. **Alex Seluzhytsky** is an employee of Sanofi Genzyme.

Presented at the 2020 Fall Clinical Dermatology Conference, October 29–November 1, Virtual Scientific Meeting (encore of ESMO 2020 poster presentation).