Nurse Satisfaction Evaluation. Observational Study of the preparation and intramuscular administration of the previous and new long-acting release Octreotide LAR formulation.

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G. Raverot[a] (Pr), I. Raingeard[b] (Dr), O. Chabre[c] (Pr), G. Cadiot[d] (Pr), R. Coriat[e] (Pr), V. Pascal-Vigneron[f] (Dr), E. Sonnet[g] (Dr), R. Desailloud[h] (Pr), F. Schillo[i] (Dr), C. Fagour[j] (Dr), A. Tabarin[k] (Pr), B. Decoudier[l] (Dr), FL. Velayoudom[m] (Dr), A. Santos[n] (Dr), T. Nguyen Tan Hon[i] (Dr), B. Delemer*[l] (Pr)

[a] Fédération d'Endocrinologie, Groupement Hospitalier Est, Hospices Civils de Lyon, Lyon, FRANCE ; [b] Service endocrinologie, diabétologie et nutrition, CHU de Montpellier, Montpellier, FRANCE ; [c] Endocrinologie et diabétologie, CHU de Grenoble, Grenoble, FRANCE ; [d] Hépato-gastroentérologie et de cancérologie digestive, CHU de Reims, Reims, FRANCE ; [e] Gastroentérologie et oncologie digestive, Hôpital Cochin, AP-HP, Paris, FRANCE ; [f] Endocrinologie, diabétologie et nutrition, CHRU de Nancy, Nancy, FRANCE ; [g] Endocrinologie et diabétologie, CHRU de Brest, Brest, FRANCE ; [h] Endocrinologie, CHU Amiens-Picardie, Amiens, FRANCE ; [i] Endocrinologie et diabétologie, CHRU de Besançon, Besançon, FRANCE ; [j] Endocrinologie et métabolisme, Hôpital Pierre Zobda Quitman, Martinique, FRANCE ; [k] Endocrinologie, CHU de Bordeaux, Bordeaux, FRANCE ; [l] Endocrinologie, diabétologie et nutrition, CHU de Reims, Reims, FRANCE ; [m] Endocrinologie et diabétologie, CHU de Guadeloupe, Guadeloupe, FRANCE ; [n] Oncologie médicale, Novartis, Rueil Malmaison, France

* bdelemer@chu-reims.fr

ABSTRACT

INTRODUCTION : Une nouvelle formulation d'octréotide LP (OCT LP) avec un nouveau solvant a été développée pour faciliter la préparation et l'administration.

OBJECTIF : Evaluer la satisfaction des infirmières suite à la préparation et à l'administration de l'injection de la précédente (PF) et de la nouvelle formulation (NF) d'OCT LP au moyen d'une échelle analogique de 0 (insatisfait) à 10 (très satisfait).

MÉTHODES : 80 médecins endocrinologues ou gastro-entérologues ont participé à cette l'étude. Etaient éligibles tous les patients traités par OCT LP pour acromégalie (ACRO), ou pour tumeur neuroendocrine digestive (TNE). 2 groupes de patients : groupe 1 « PF » et groupe 2 « NF ».

RÉSULTATS : Caractéristiques des patients du Groupe 1 (GR1) : 64 TNE (63,8 ± 10,7 ans; 33 hommes), 34 ACRO (53,6 ± 12 ans ; 18 hommes) et des patients du groupe 2 (GR2): 65 TNE (62,4 ± 12,2 ans; 26 hommes) et 34 ACRO (56,7 ± 11,4 ans; 12 hommes). 98 et 99 infirmières ont participé respectivement dans le GR1 et le GR2.

La satisfaction globale moyenne des infirmières était de 5,3 (IC 95% : 4,9 - 5,8) avec PF et de 7,5 (IC 95% : 7 - 7,9) avec NF (p<0,0001). Une augmentation de la simplification de l'injection (84% avec PF et 94% avec NF) et une disparition du problème de purge (36% avec PF et 4% avec NF) ont été observées.

CONCLUSION : Une amélioration significative de la satisfaction globale des infirmières a été obtenue avec la nouvelle formulation d'OCT LP.

RATIONAL

- Long acting-release somatostatin analogs are the standard treatment for acromegaly in patients with inadequate response to surgery[1, 2, 3], TSH-secreting pituitary tumors[4], most functioning neuroendocrine tumors (NETs), especially those with the carcinoid syndrome, and slowly-progressive advanced well-differentiated NETs[5].
- Octreotide is a synthetic octapeptide first-generation SSA with more prolonged pharmacological actions than natural somatostatin. Its long-acting release (LAR) formulation disperses the octreotide in microspheres of the biodegradable polymer and allows for a life-long monthly intramuscular administration maintaining a steady concentration of octreotide between injections. The first LAR formulation of octreotide was marketed in France in the late 90's[6].
- A new injectable suspension formulation has been developed using a new solvent intended to improve its use in practice. This new formulation of Sandostatin LAR® has both pharmacokinetic and therapeutic equivalence. Through an improved suspension of its microparticles and the reduction of the injected volume, octreotide LAR is expected to be easier to prepare, safer and its injection less painful. It has replaced the previous formulation in France in 2018.
- In addition to the proved effectiveness and safety of Sandostatin LAR®[7], its usability, ease of preparation and simplicity of administration are expected by patients and nurses as key factors for effective treatment delivery. Patients treated with the previous formulation reported treatment burden on their functioning, well-being and daily lives. However, patients were both satisfied with their treatment and confident that it provided benefit to them[8].
- The new formulation of Sandostatin LAR® has been developed for optimizing care through two objectives: enabling patients to maintain a quality of life in adequacy with the management of their disease; and supporting health professionals in charge of the monthly administration of the treatment.

STUDY OBJECTIVES

MAIN OBJECTIVE

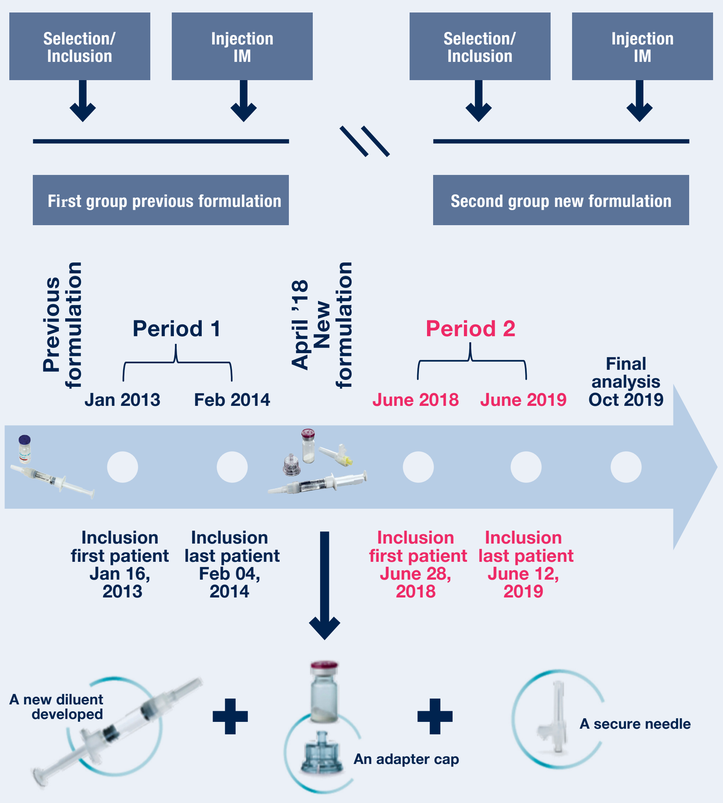
- To compare the overall satisfaction of nurses for the preparation and the administration of the previous and the new formulation of Sandostatin LAR® in intramuscular deep.

SECONDARY OBJECTIVES

- Describe the satisfaction of nurses on following criteria:
  - Time for reading operating instructions
  - Ease of dilution of the powder
  - Ease of purging of the syringe
  - Ease of the intramuscular injection
  - Overall time of preparation and administration.
- To assess the satisfaction of patients (pain and quality of life).
- To describe tolerance of Sandostatin LAR®.

PATIENTS AND METHOD

- National, observational, descriptive, multicenter study, open label, non randomized.
- Study Design.



- Population
  - ➜ Inclusion criteria
    - Patients treated with Sandostatin LAR® for acromegaly, primary TSH-secreting adenomas or digestive endocrine tumours
    - Patients informed
    - Adult patients (male or female) ≥18 years old.
  - ➜ Non inclusion criteria
    - Known hypersensitivity to octreotide or to any of the excipients in the suspension
    - Patients with difficulties to read and/or understand the French language and not being able to complete alone the patient questionnaire
    - Participation in a clinical trial at inclusion visit.

RESULTS

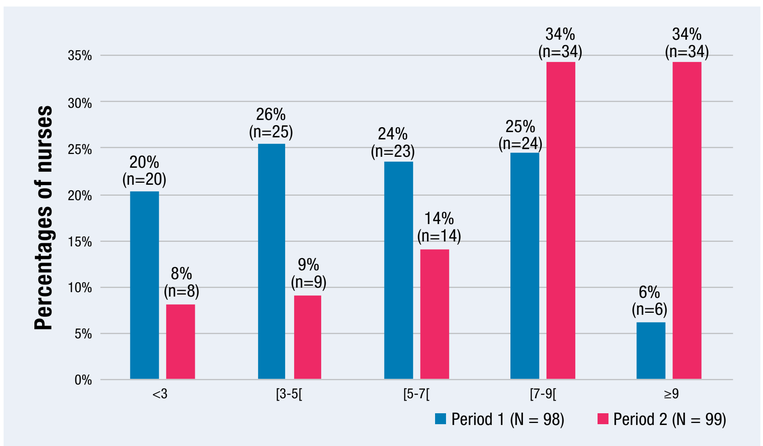
MAIN OUTCOME

Nurses' overall satisfaction across periods

		Period 1 Injection with previous formulation (N=98)	Period 2 Injection with new formulation (N=99)
Satisfaction of nurses*	Mean (±SD)	5.3 (± 2.3)	7.5 (± 2.4)
	95% CI	[4.9 - 5.8]	[7 - 7.9]

*0 = impossible to prepare and inject / 10 = very easy to prepare and inject

- Mean overall satisfaction of nurses after the preparation and injection of Sandostatin LAR® was significantly higher in P2 (mean = 7.5; SD ± 2.4. 95% CI [7 - 7.9]) than in P1 (mean = 5.3 SD ± 2.3; 95%CI [4.9 - 5.8]) **(p<0.0001, Student's t-test)**.



- Only 6 (6%) P1 nurses had a satisfaction score greater than or equal to 9 *versus* 34 (34%) P2 nurses in period 2.

CHARACTERISTICS OF PATIENTS AT INCLUSION

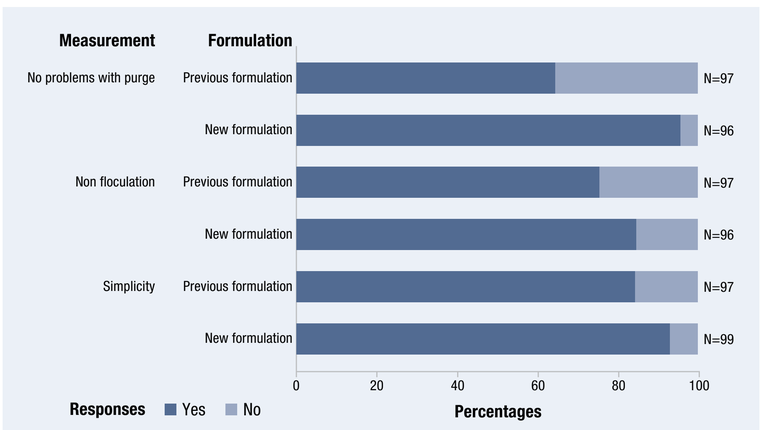
		Period 1 Acromegaly (N=34)	Period 1 NET (N=64)	Period 2 Acromegaly (N=34)	Period 2 NET (N=65)
Demographic data					
Age (years)	Mean (±SD)	54 (± 12)	64 (± 11)	57 (± 11)	62 (± 12)
Gender	Male Female	18 (53%) 16 (47%)	33 (52%) 31 (48%)	12 (35%) 22 (65%)	26 (40%) 39 (60%)
Weight (Kg)	Mean (±SD)	81 (± 18)	69 (± 15)	76 (±15)	70 (± 17)
Disease information					
Duration of the disease (years)	Mean (±SD)	9 (± 8)	5 (± 4)	12 (± 10)	7 (± 6)
Biological control of the acromegaly	Yes	20/33 (61%)	-	26/34 (77%)	-
Previous and current treatment					
Previous Surgery	Yes	25/34 (74%)	50/64 (78%)	22/34 (65%)	44/64 (69%)
Previous pituitary Radiation Therapy	Yes	7/34 (21%)	2 (3%)	7/34 (21%)	-
Chemotherapy	Yes	-	16/62 (26%)	-	12/65 (19%)
Sunitinib	Yes	-	4/61 (7%)	-	4/64 (6%)
Everolimus	Yes	-	8/62 (13%)	-	8/64 (13%)
SSAs	Yes	34 (100%)	44 (69%)	32 (94%)	56 (86%)
Treatment duration (years)	Mean (±SD)	6 (± 6)	2.7 (± 3)	7 (± 6)	3 (± 3)
Pegvisomant	Yes	5/34 (15%)	-	3/32 (9%)	-
Cabergoline	Yes	9/33 (28%)	-	4/31 (13%)	-

Geographical distribution of physicians

Region	Injection with previous formulation (N = 39)	Injection with new formulation (N = 32)
Auvergne-Rhône-Alpes	2 (5%)	2 (6%)
Bourgogne-Franche-Comté	2 (5%)	2 (6%)
Brittany	4 (10%)	2 (6%)
Centre-Val de Loire	0 (0%)	3 (9%)
Corsica	0 (0%)	0 (0%)
Grand Est	5 (13%)	4 (13%)
Hauts-de-France	3 (8%)	3 (9%)
Île-de-France	9 (23%)	8 (25%)
Normandie	0 (0%)	2 (6%)
Nouvelle-Aquitaine	3 (8%)	1 (3%)
Occitanie	4 (10%)	1 (3%)
Pays de la Loire	2 (5%)	1 (3%)
Provence-Alpes-Côte d'Azur	4 (10%)	1 (3%)
Overseas regions	1 (3%)	2 (6%)

SECONDARY OBJECTIVES

Nurses' opinions on problems and simplicity associated to each formulation



- Increase in the simplicity of the injection (84% for previous formulation and 94% for new formulation).
- Disappearance of the purge problem (36% for previous formulation and 4% for new formulation).

Pain rating*

	Period 1 Injection with previous formulation	Period 2 Injection with new formulation
Analyzed population	97	98
Mean (±ET)	2.1 (±2.4)	1.9 (±2.2)
95% CI	[1.6 - 2.6]	[1.4 - 2.3]
Q1-Q3	0.2 - 3.4	0.2 - 2.8

*0 = no pain / 10 = high pain

The vast majority of patients reported low intensity injection pain:

- The average pain experienced slightly decreased between P1 (2.1; SD ± 2.4) and P2 (1.9; SD ± 2.1).
- 70 (72%) P1 patients and 78 (79%) P2 patients estimated that the pain was less than or equal to 3 on an 10-scale EVA.

SAFETY

	Period 1 Acromegaly (N=37)	Period 1 NET (N=75)	Period 2 Acromegaly (N=37)	Period 2 NET (N=73)
Patients with				
At least one adverse event	5 (14%)	16 (21%)	8 (22%)	17 (23%)
At least one serious adverse event	0 (0%)	3 (4%)	1 (3%)	2 (3%)
At least one adverse event related to Sandostatin LAR®	5 (14%)	14 (19%)	5 (14%)	15 (21%)
At least one serious adverse event related to Sandostatin LAR®	0 (0%)	2 (3%)	0 (0%)	2 (3%)

CONCLUSION

- Similar patient populations between the two study periods.
- Significant improvement in the overall satisfaction of nurses with the new formulation of Sandostatin LAR®: 5.3 (95% CI: 4.9-5.8) with previous formulation to 7.5 (95% CI: 7-7.9) with new formulation (p<0.0001).
- Disapearance of the purge problem and improvement injection simplicity with the new formulation of Sandostatin LAR®.
- The previous and new formulation of octreotide LAR® are very well tolerated.

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DISCLOSURE INFORMATION

G. Raverot: Novartis - I. Raingeard: Novartis - O. Chabre: Novartis - G. Cadiot: AAA, Ipsen, Keocyt, Novartis, Pfizer - R. Coriat: Amgen, Merck, Ipsen, Novartis, AAA, Keocyt, Bayer, Servier, Sanofi - V. Pascal-Vigneron: Novartis - Dr E. Sonnet : Novartis - R. Desailloud: Novartis - F. Schillo: Novartis - C. Fagour: Novartis - A. Tabarin: Novartis, HRA Pharma, Ipsen, Recordati - B. Decoudier: Novartis - FL. Velayoudom: Novartis - A. Santos: Novartis - T. Nguyen Tan Hon: Novartis - B. Delemer: Ipsen, Novartis, Pfizer

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Participating physicians: Abakar Mahamat, A; Ajzenberg, C; Albarel Loy, F; Assenat, E; Baconnier, M; Bihan, H; Bouhier Leporrier, K; Bourcigaux, N; Brezault Bonnet, C; Brue, T; Cadiot, G; Caulet, M; Chabre, O; Chanson, P; Coriat, R; Dadamessi, I; Dauvois, B; Deblock, M; Decoudier, B; Delemer, B; Desailloud, R; Desauw, C; Desrame, J; Di Fiore, F; Dominguez, S; Donadille, B; Donnet, J; Dourthe, L; Etienne, P; Fagour, C; Fonck, M; Garnier Tixidre, C; Goichot, B; Guedj, A; Guimbaud, R; Hassler, P; Hentic Dhome, O; Iwanicki Caron, I; Jeandidier Gauthier, N; Joly, J; Jublanc, C; Klein, M; Labourey, J; Lagasse, P; Lecomte, T; Leyronnas, C; Locher, C; Maire, F; Manfredi, S; Mary, F; Mazard, T; Merlen Kosydar, E; Metges, J; Michaud Herbst, A; Mineur, L; Mouysset, J; Nadalon Chambrier, S; Nahon, S; Nguyen Tan Hon, T; Niccoli, P; Obled, S; Pascal-Vigneron, V; Penfornis, A; Poupardin Moulin, C;Prevost, J; Raingeard, I; Raverot, G; Rebours, V; Requeda, E; Rodien, P; Rodien, P; Samalin, E; Schillo, F; Smith, D; Sobhani, I; Sonnet, E; Tabarin, A; Terrebonne, E; Thomas, J; Touraine, P; Velayoudom, F; Verier Mine, O; Verveur, C; Villing, A; Yakendji, K; Zannetti, A.

Participating Nurses: Abassebay, S; Aguililla, E; Alazaud, E; Anglade, V; Anglio, M; Aubriot, C; Audebert, C; Auger, S; Badani, M; Balligand, P; Barriere, F; Belle, S; Benamor, D; Berenger, C; Berger, L; Beroudiaux, B; Bertin, A; Bertin, C; Bidan, C; Bodet, C; Bonardi, O; Bonneau, P; Bonnefe, B; Bonnotte, O; Boucher, I; Boulanger, C; Brasseur, G; Braun/Reuter, B; Buguet, C; Cados, P; Cambot, I; Capelle, J; Cappelle, L; Caruso, F; Chadefaud, S; Chanu, P; Chatreaux, S; Chavanon–Vidal, C; Cheron, L; Chesini, M; Claerebout, C; Cocaign-Lepelletier, C; Coillot, C; Connant-Rault, N; Consigny, K; Costa, C; Couraceiro, A; Courbet, A; Courtois, F; Coutin, C; Cugnenc, V; Cyrille, S; Dalla-Riva, M; Dartier, E; De Brito, M; De Luca, L; Deboudt, C; Debs, M; Delbe, M; Delbé, P; Deodato, G; Deporcq, C; Derez, C; Desseaux, I; Didier, J; Donnet, A; Doridot, L; Douay, B; Druais, S; Dubarry, E; Dubois, G;Dudel, I; Duhoo, L; Dutartre-Lacroix, C; Edeline, B; Elixee, C; Emiliani, S; Eymann, V; Eymard, I; Faichaud, J; Febvre, M; Fligeat, R; Flippe, C; Foret, C; Forget, E; Fouliard, L; Frerot, V; Friderich, N; Galpin, V; Gatard, F; Gatumel, J; Gentil, S; Giboulet, A; Girot, O; Golebiewski, C; Gotni, F; Grandgirard, C; Guillou, V; Guinault, P; Hamann-Gresset, E; Harant, A; Heliot, M; Henry, C; Hergas, E; Hesse, M; Hubert-Piesseau, M; Jean, T; Jean-Jean, P; Jeanmarie, M; Karamane, A; Klisz, F; Korczynski, A; Krajcovic, J; Labrunie, L; Langlet, B; Lanu, S; Laplaze, C; L'arvor, A; Laurent–Chapuis, L; Laurent, C; Laval, C; Le Bigot, N; Le Faucheur, A; Lê Quang, S; Lebreton, P; Leger, V; Lelong, L; Leon, A; Leroy, P; Lithard, C; Lohou, S; Lorber, S; Lowes, S; Maciejewski, K; Mack, I; Maisonneuve, F; Marichal-Abrial, C; Maroszak (), -; Martial, P; Martin, B; Meline, E; Meuret (), P; Mevel, S; Moisset, C; Mongin, B; Montaigne, C; Moreau, M; Moreno, C; Mouffok, M; Mounsif, H; Musard, F; Nancey, E; Oliveira Da Costa, A; Orsini, D; Pananceau, L; Parcy, N; Paubet, P; Paudert, G; Pelletane, C; Perard, V; Perlin, A; Perriguey; Petrovic, P; Philippe, S; Pierry, C; Pittet, F; Pittet, M; Pomarico, A; Ponsan, J; Prevost, M; Proux, M; Prunier, N; Rambeaud, P; Rannou, C; Redo, A; Retournay, E; Reynaud, J; Reynaud, R; Rigollot, I; Robardet, C; Rochdy, E; Rosamond, V; Rouby, M; Rouille, J; Roumeas, E; Rozencwajg, L; Runigo, C; Sadrant, J; Salingue, A; Sam Bassoum, R; Saran, F; Sayah, N; Sche R, J; Schelpe, G; Sevin-Roux, C; Sighele, C; Sigonney, A; Silvin, M; Simba, P; Solagna-Fernandez, A; Solvar, M; Sottana, D; Taillandier, V; Tessier, J; Travers, J; Travert, C; Troufflard, A; Turbiarz, S; Valmorin, C; Vandevelde, M; Vedel, A; Verite, S; Vesta, M; Veyssiere, E; Vidal, T; Walczak, S.

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