Patients and Methods, Tutorial

Patients

The **3142 patients** included in this **research** were recruited **prospectively** and **consecutively** from 2 July 2004 to 21 August 2019. They are patients experiencing chronic neuropathic pain referred to the Somatosensory Rehabilitation Centre.[1] In order to study a group as homogeneous as possible, we restricted this topographical research to patients whose skin was accessible for accurate evaluation: they did not show hypersensitivity to touch, that is, they did not present mechanical allodynia[G].

Inclusion criterion:
a diagnosis of Aβ axonal lesions[G] (*n* = 5241)

Exclusion criterion:
a positive allodynography[G] (*n* = 2108)

It should be noted that patients who had previously a positive allodynography (exclusion criterion) at the first assessment session, and who subsequently presented a positive secondary aesthesiography[G] after resolution of the allodynia, were excluded. If the presence of this underlying hypoaesthesia can no longer be proven, the boundary of these secondary aesthesiographies remains unclear. Indeed, while certain receptive fields detect the aesthesiometer, some other neighbouring receptor fields may perceive a stimulus as unpleasant though no longer painful. This other physiological state of the skin can then generate false positives, in other words, an aberrant clinical examination.

This prospective research is based on **3133 aesthesiographies**[G], the first step of the diagnosis of Aβ axonal lesions – distributed according to each cutaneous domain[G] of the human body in the following way:

1.	Trigeminal domain	*n* = 94
2.	Occipital domain	*n* = 65
3.	Cervical domain	*n* = 41
4.	Brachial domain	*n* = 706
5.	Posterior-intercostal domain	*n* = 155
6.	Lumbo-abdominal domain	*n* = 104
7.	Lumbo-femoral domain	*n* = 147
8.	Femoral domain	*n* = 358
9.	Sciatic domain	*n* = 1314
10.	Sacral domain	*n* = 149

Methods

The aesthesiography (Létiévant 1869, 1873; Spicher and Kohut 2001; Spicher 2003; Spicher and Quintal 2013)

The aesthesiography (Fig. 3, "Introduction" chapter) is the mapping of a hypoaesthetic skin territory representationally reported on diagrams or photographs.

The aesthesiometer[G] used for the entire human body is the **0.7 g** aesthesiometer (Semmes-Weinstein monofilament #3.84), except:

– For the dorsal surfaces of the hand and foot: 0.4 g (Semmes-Weinstein monofilament #3.61)
– For palmar and plantar surfaces: 0.2 g (Semmes-Weinstein monofilament #3.22)
– For the face: 0.1 g (Semmes-Weinstein monofilament #2.83)

It should be noted that this evidence draws from very important information for the somatosensory rehabilitation of neuropathic pain: the normative values for pressure perception threshold.

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Norms for Pressure Perception Threshold (PPT)
(Weinstein 1962; Bell-Krotoski et al. 1994; Spicher et al. 2013)

0.1 g on palmar and plantar surfaces.
#3.22 aesthesiometer is detected.

0.3 g on dorsal surface of the hand and foot.
#3.61 aesthesiometer is detected.

0.6 g on the rest of the body.
#3.84 aesthesiometer is detected.

The goal of the Pressure Perception Threshold (PPT) research is to determine the minimum pressure detected at a specific point. For this test, it is necessary to select 15 out of the 20 aesthesiometers of the Semmes-Weinstein monofilaments kit graded from 0.03 to 75.0 g. Within the aesthesiography, we determine the most hyposensitive contact area, touching the skin and questioning the patient. It is in this area that a precise point, reproduced on the sheet of the aesthesiography, will be determined for the realisation of the PPT (Quintal et al. 2013).

The Cardinal Point: Topographic Element

The dots indicate where the 0.7 g application is not detected. The largest area of cutaneous origin is bounded by its four cardinal points; e.g. the most distal point (Fig. 3, "Introduction" chapter).

The **green dot** corresponds (Fig. 1) to the most radial point, for example, **observed** in our series.

In some boards, **a brown point** (Fig. 1) corresponds to **a point farther from** the autonomous territory than the green cardinal point which we have observed, but which is published in the **literature** (referred to on the board and cited, also in brown, in the list of references). Other points published in the literature are not retained because they are less distant from the autonomous territory: Testut (1897), Tinel (1916), Tubiana and Thomine (1990) and Doyle and Botte (2003).

Fig. 1 : *The most radial point, on one of the axes of a cutaneous branch, of the largest territory of cutaneous origin. In this figure,* **3** *is the most radial* ***point published*** *by Sunderland (***1978***) in the literature;* **2** *is the most radial* ***point observed*** *in the dorsal branch of the ulnar nerve;* **1** *is another point published by Létiévant (***1869***,* **1873***), but not retained, because it is not "most radial" of the largest area of cutaneous origin of this branch*

The Arrow

The arrow (Fig. 1, "Introduction" chapter) indicates the axis and the direction along which the aesthesiometer is applied; either the longitudinal axis or the transversal axis, or even the metacarpophalangeal axis, the metatarsophalangeal axis, etc.

The Triangle

The triangle indicates the point from which the measures were taken. It corresponds to the theoretical point of origin (0,0) of the orthogonal axes (x,y).