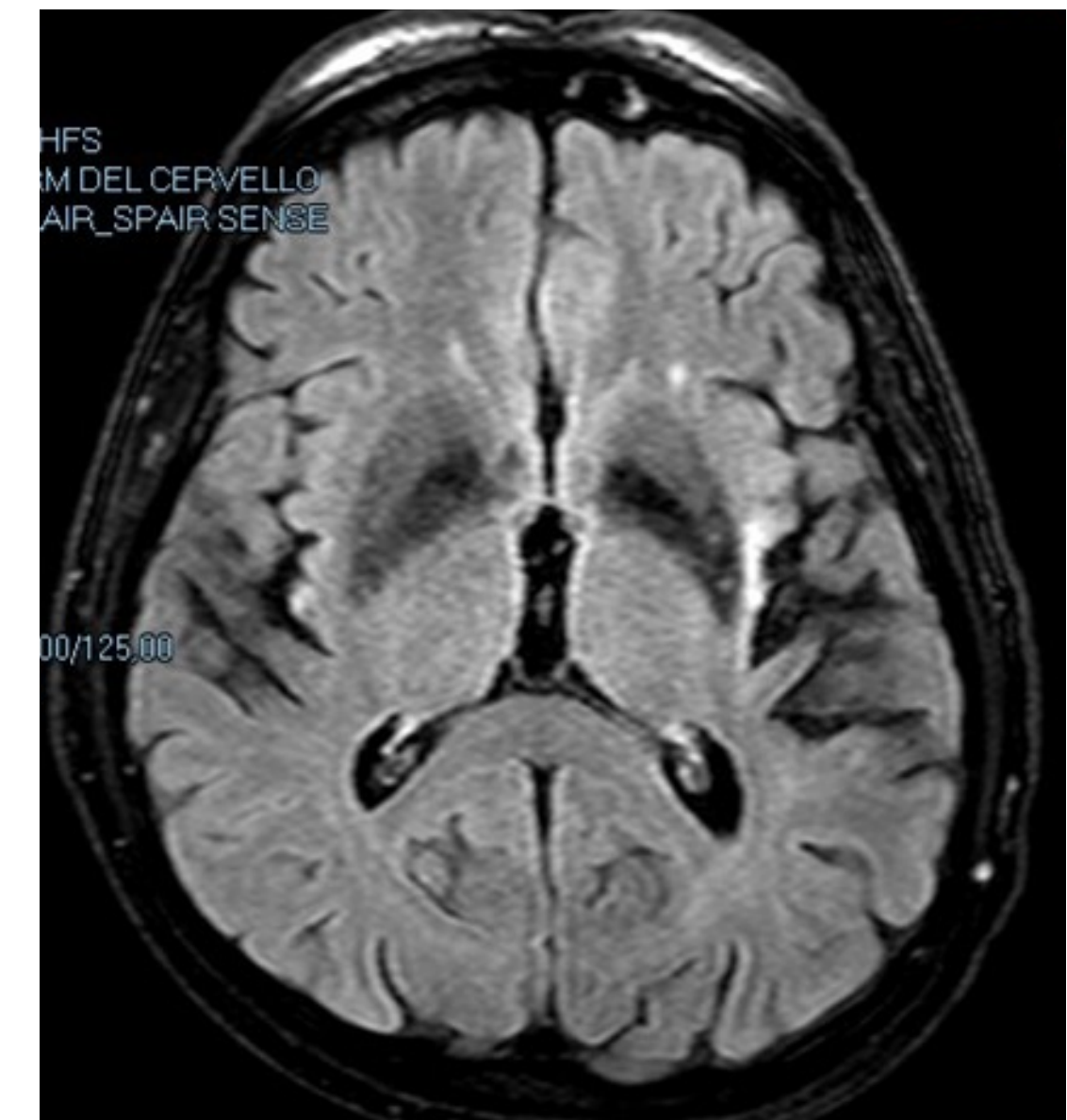


# Insular ischemic stroke: typical clinical presentation and unusual features

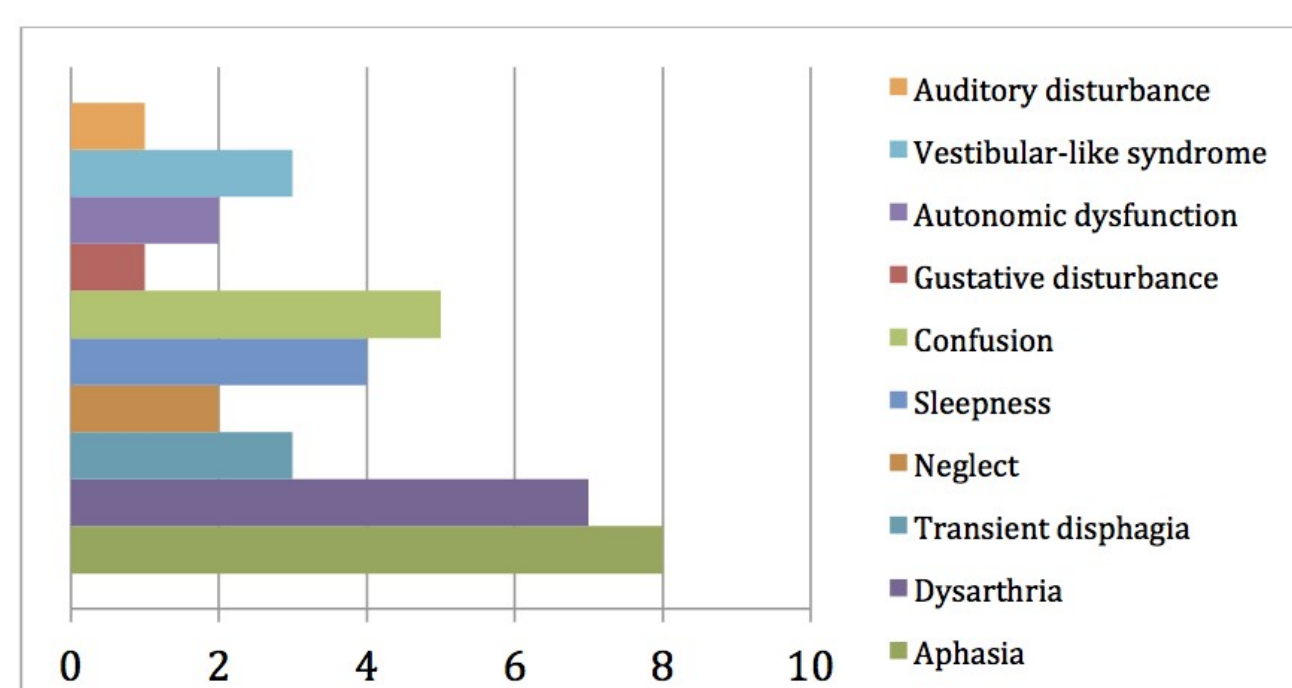
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**Introduction:** The appearance of symptoms related to insular dysfunction has been the object of several studies in patients affected by stroke, but these symptoms are often intermingled with a variability of concomitant symptoms due to the vastity of the vascular territory usually involved by the stroke. To isolate insular symptoms it would be interesting to analyze the clinical consequences of the rare ischemic strokes limited to the insula. The aim of our study is to characterize the clinical presentation of acute ischemic strokes in patients with a first event stroke restricted to the insular territory with specific attention to behavioral manifestation of insular dysfunction due to an ischemic stroke (Insular stroke, IS).

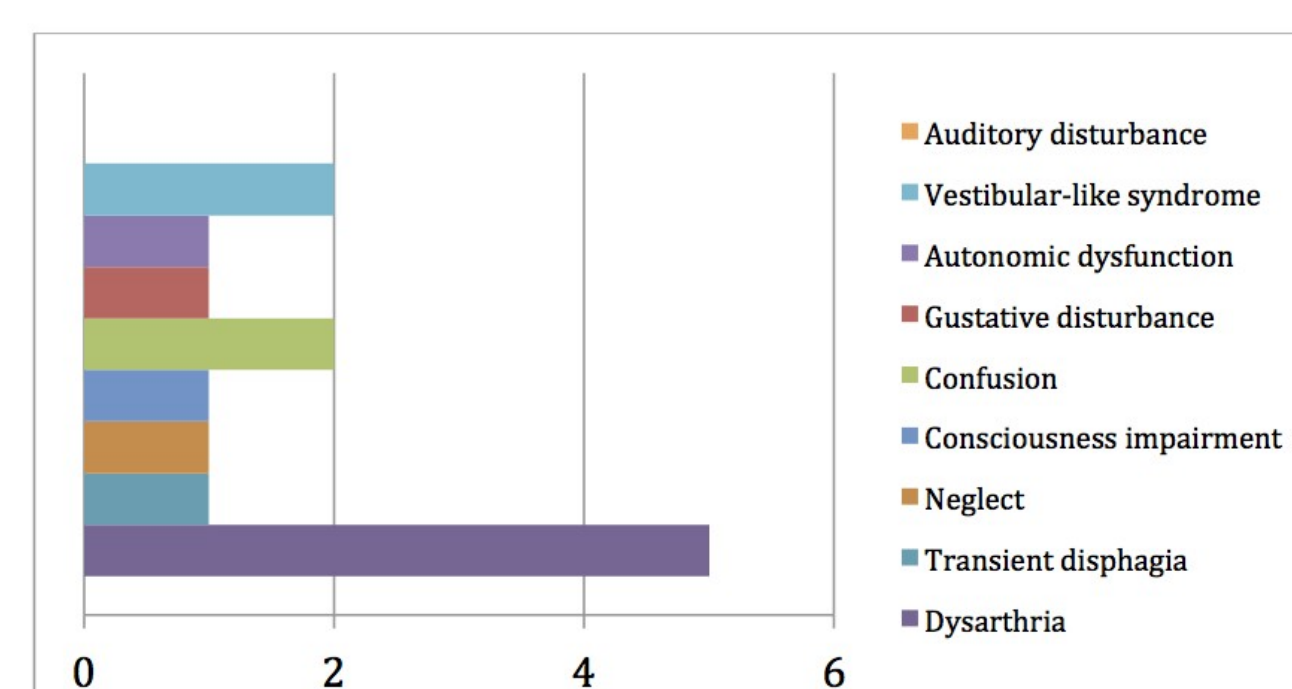


**Methods:** We enrolled IS patients from the stroke registry of the "SS. Annunziata" Hospital of Chieti, among 511 with a first-event acute stroke who were admitted between the 1<sup>st</sup> January 2014 and the 1<sup>st</sup> January 2017. IS patients showed CT/MRI lesions restricted to the insular region. Exclusion criteria were: coexisting neurological diseases, structural brain lesions, extension to the subinsular area (extreme capsule, claustrum, external capsule) > 50% of the total infarct volume on CT or MRI imaging.

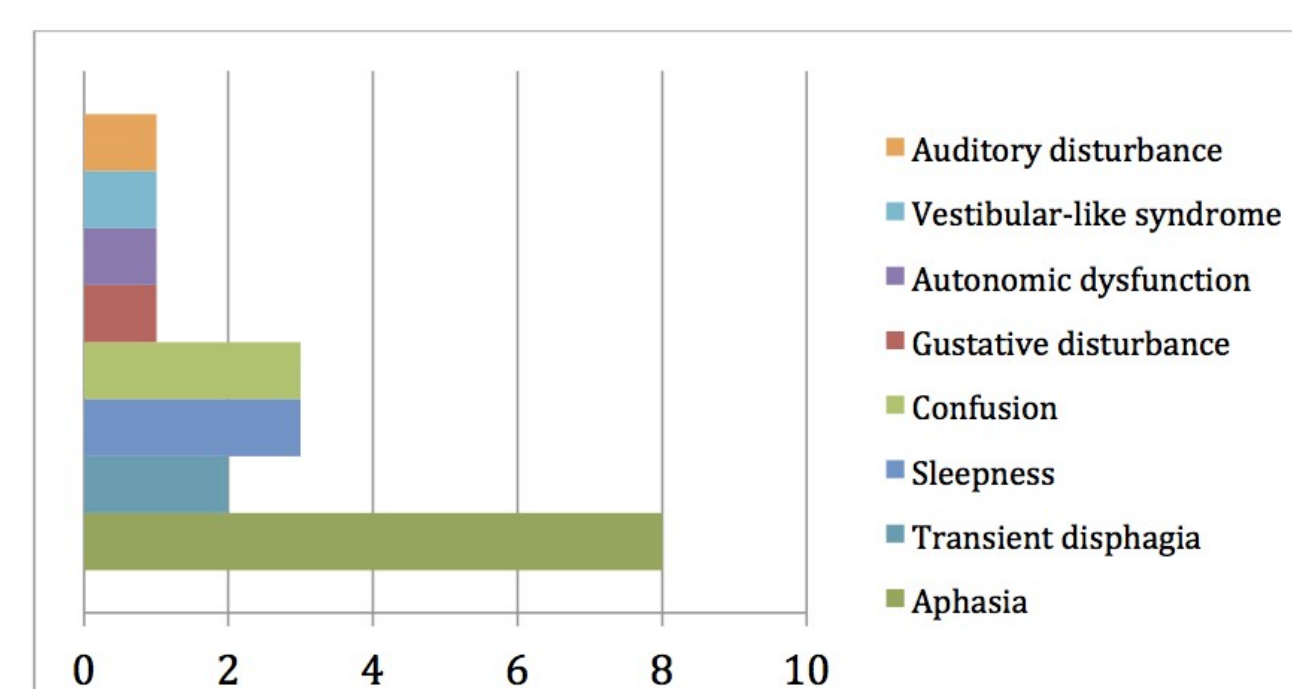
	Age, sex	Lesion topography	Typical features	Unusual features	NIHSS On admission	NIHSS On discharge
1	SP, 70, M	Right	Neglect	Confusion, space-time disorientation Vestibular-like syndrome	1	0
2	ML, 85, F	Right	Facial and left arm weakness	-	1	1
3	GP, 72, M	Left	-	Confusion, space-time disorientation	0	0
4	PC, 76, M	Left	Facial weakness	Confusion, space-time disorientation, vestibular-like syndrome, autonomic dysfunction	1	0
5	VA, 73, F	Right	Left hemiparesis	-	3	0
6	TL, 74, M	Left	Right hemiparesis, non-fluent aphasia	Sleepiness	4	2
7	DA, 78, F	Right	Left hemiparesis, dysarthria	Transient dysphagia	4	2
8	ZU, 56, M	Right	Facial weakness, dysarthria	-	3	2
9	SI, 78, F	Left	Facial weakness, non-fluent aphasia	-	4	2
10	FB, 73, M	Left	Right hemiparesis, non-fluent aphasia	-	5	3
11	SE, 76, M	Right	Left hemiparesis, hypoaesthesia, dysarthria	Confusion, space-time disorientation	4	2
12	PA, 82, F	Left	Facial weakness, non-fluent aphasia	Transient dysphagia	2	2
13	DO, 89, F	Left	Right hemiparesis, anaesthesia, non- fluent aphasia	Sleepiness Confusion, space-time disorientation	24	0
14	SP, 77, M	Right	-	Appetite modifications, vestibular-like syndrome, autonomic dysfunction	0	0
15	SB, 75, M	Right	Arm weakness, ataxia, dysarthria	-	1	0
16	BP, 65, F	Left	Non-fluent aphasia	Sleepiness, auditory disturbance	2	0
17	SM, 68, F	Left	Arm weakness, non-fluent aphasia	-	3	0
18	IM, 65, M	Left	Arm weakness, non-fluent aphasia	Transient dysphagia	2	0
19	CM, 67, F	Right	Left hemiparesis, hypoaesthesia, aphasia, dysarthria	Sleepiness Gustative disturbance	8	1
20	LO, 64, M	Right	Facial weakness, hypoaesthesia, dysarthria	-	1	0



Frequency of unusual symptoms in all 20 patients with insular stroke



Frequency of unusual symptoms in patients with right insular stroke



Frequency of unusual symptoms in patients with left insular stroke

**Results:** We identified 20 IS patients (11 males), with a mean age of 73 years (range, 56-89), divided as right IS (rIS) and left IS (lIS) depending of the hemisphere involved. IS patients presented with one or a combination of the following behavioural symptoms: sleepiness (up to coma) 20% (3 left, 1 right), confusion 25% (3 left, 2 right), auditory 5% (1 left) or gustatory disturbances 10% (1 left, 1 right), appetite modifications 5% (1 right), together with the following accompanying symptoms: transient dysphagia 15% (2 left, 1 right), autonomic disturbance 10% (1 left, 1 right), vestibular-like syndrome 15% (1 left, 2 right), and space-time disorientation 20% (3 left, 2 right).

**Discussion and conclusion:** Isolated IS were described only in few previous studies or case reports and their incidence is not well defined.

Although motor and sensory deficits, aphasia and dysarthria are among the well known described symptoms of IS, in accord to literature, we observed many unusual clinical presentations, such as dizziness, autonomic dysfunction, gustatory and auditory disturbances.

Larger studies are needed to better define incidence and clinical presentation in IS.

## References

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