

Cross-sectional and prospective study of the association between lifestyle, individual risk factors and Acute mountain sickness

Luca Bastiani¹, Elena Marrucci¹, Massimo Martinelli², Loredana Fortunato², Bonin Solange³, Cugnetto Marina³, Pernechele Niccolò³, Ranfone Marco³, Fiorini Andrea³, Nicole Collin⁴, Guido Giardini³, Sabrina Molinaro¹, Lorenza Pratali¹ on behalf of e-Rés@mont Project.

1 - Institute of Clinical Physiology, CNR, Pisa, Italy; 2 - Institute of Information Science and Technologies, CNR, Pisa, Italy; 3 - Regional Hospital, U. Parini, Aosta, Italy; 4 - Montagne Sûre, Courmayeur, Italy

BACKGROUND

In recent years there has been an increase in the attendance of people at high altitudes for both tourist and business reasons, so acute high altitude diseases (AMS: Acute mountain sickness- HAPE: High-altitude pulmonary edema; HACE: High altitude cerebral edema), represent a non-negligible public health problem.

OBJECTIVES

This research examined cross-sectional and prospective associations of lifestyle, individual risk factors and acute mountain sickness (AMS) in a community-based sample recruited in the cross-border area (Switzerland, Italy and France Alps).

METHODS

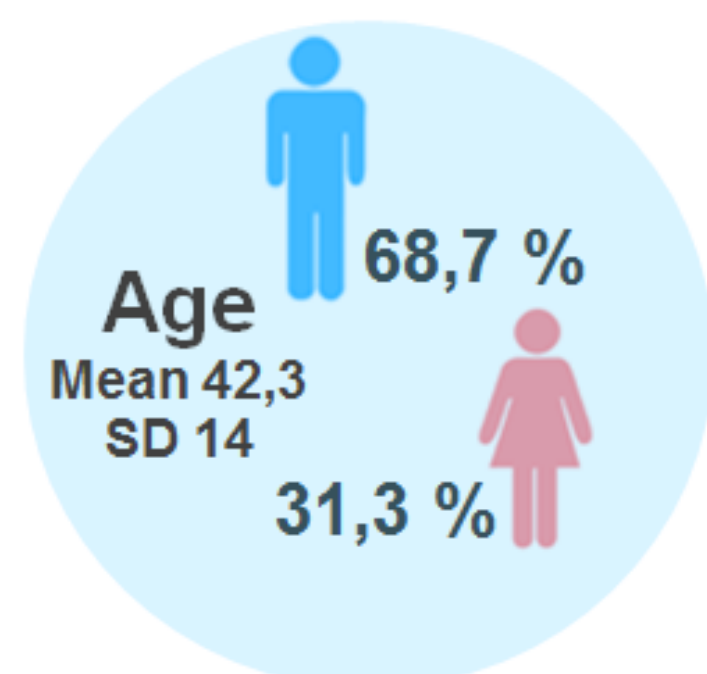
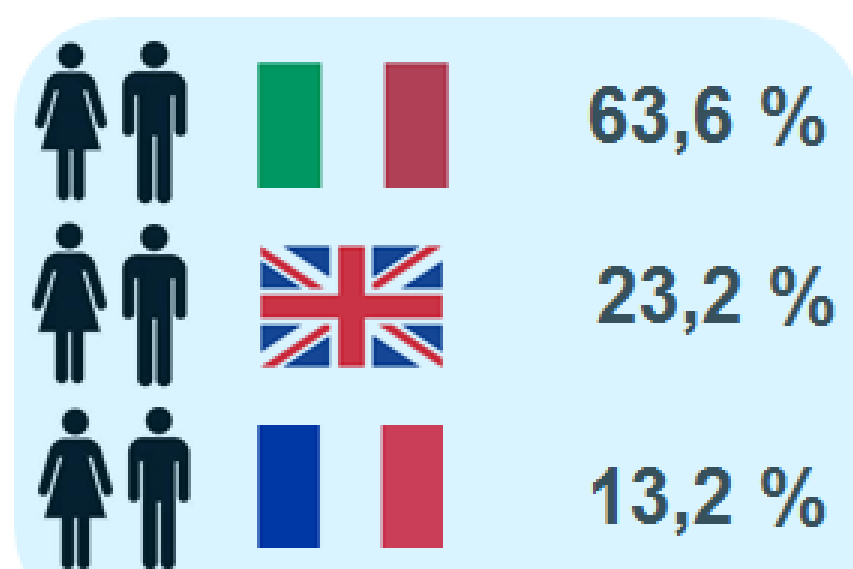
The questionnaires were administered by specialized personnel in the five mountain locations in Aosta Valley (1500-3500 meters) envisaged by the e-Rés@mont project: Arbolle hut (2.507m), Col del Seigne (2.365m), Mantova hut (3.498 m), Torino hut (3.375m) and Cogne health service (1.544m).

RESULTS

Sample

Data were analyzed from 1002 subjects (males 68,7%, females 31,3%; mean age 42±14 yrs) in a cross-sectional study (session T0) and from 1.112 interviews in a longitudinal study on 3 consecutive days (session T1-T2-T3), n°631 in the T1, n°300 in T2 and n°181 in T3.

Baseline N° 1002



Session T1-T2-T3

Among the subjects enrolled in the prospective study, 36,5% was classified as mild or moderate/severe AMS in at least one of the 3 days.

Follow-up	T1 n° 631	T2 n° 300	T3 n° 181	
	T1 n° 631	67,1 %	71,9 %	75,4 %
T2 n° 300	24,9 %	21,2 %	19,7 %	AMS +
T3 n° 181	7,9 %	6,9 %	4,9 %	AMS ++

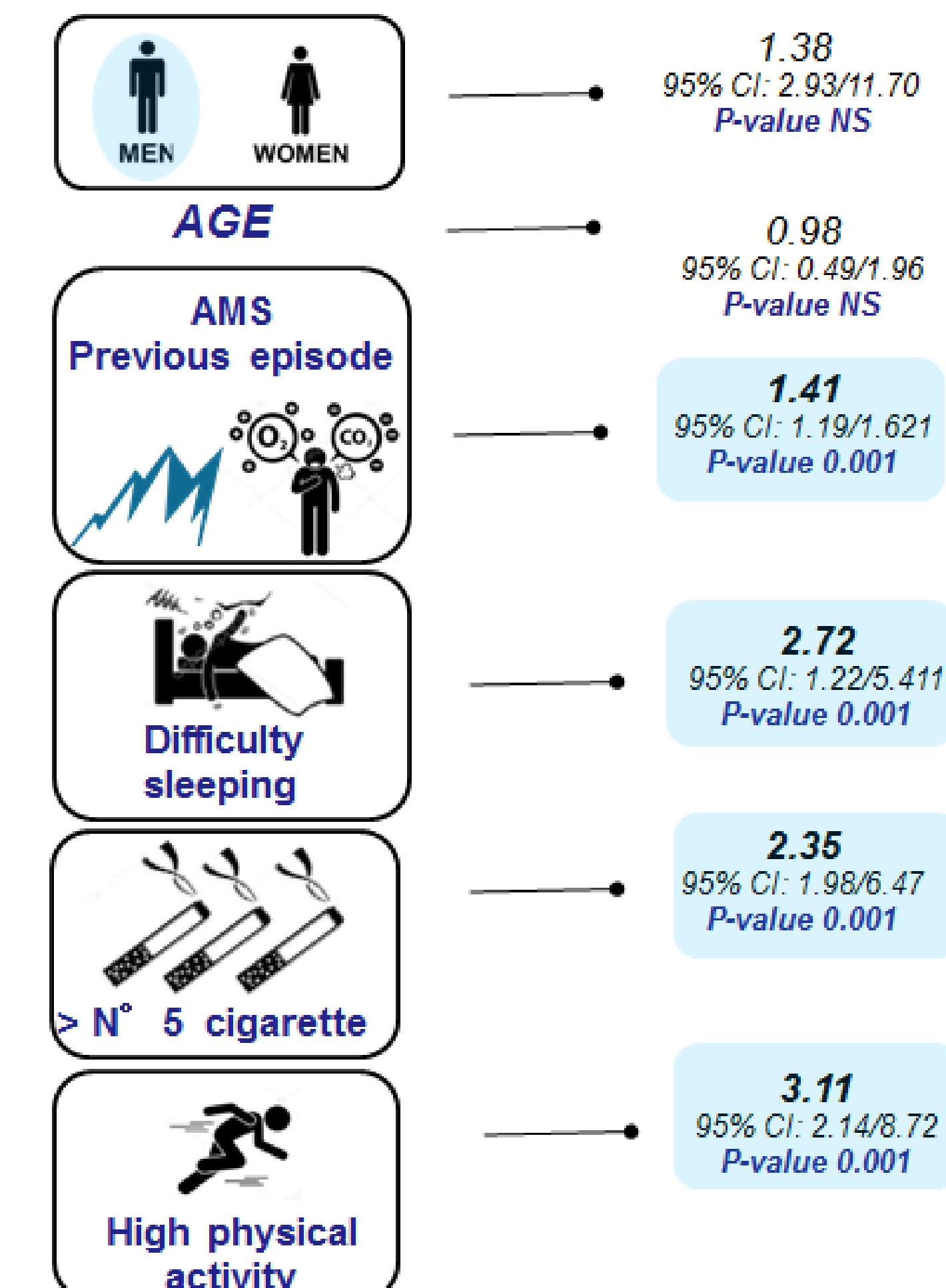
Session T0

According to Lake Louise Score self-reported, at session T0, 35.9% of the subjects were classified as mild AMS and 17.5% as moderate-severe AMS.

Lake Louise Score: diagnosis

0 to 2= no AMS	46,6 % AMS -
3 to 5 = mild AMS	35,9 % AMS +
6 or more = severe AMS	17,5 % AMS ++

Associated Factors to AMS + and AMS ++



Predisposing factors to AMS detected in prospective study were: sex (male; OR-1.4, CI: 2.9-11.7; p=0.001), history of strenuous physical activity (> 3 times per week) (OR-3.1, CI: 2.1-8.7; p=0.001), smoking >5 cigarettes per day (OR-2.4, CI: 2.0-6.5; p=0.001), difficulty sleeping (<=6 hours), Previous AMS episode (OR-1.4, CI: 1.2-1.6; p=0.001).

CONCLUSION

This study confirms which are the AMS' predisposing factors, but highlights that individual lifestyle choices play an important role in the AMS' risk. Further studies are needed to investigate if interventions in life style behavior can modify the impact in high altitude diseases.