9th National Seminar on Travel Medicine

17 November 2011

Acute Mountain Sickness

14.05-14.30

Acute Mountain Sickness

Dr. M. Croughs, ITG Antwerp & GGD Hart voor Brabant NL

Acute Mountain Sickness

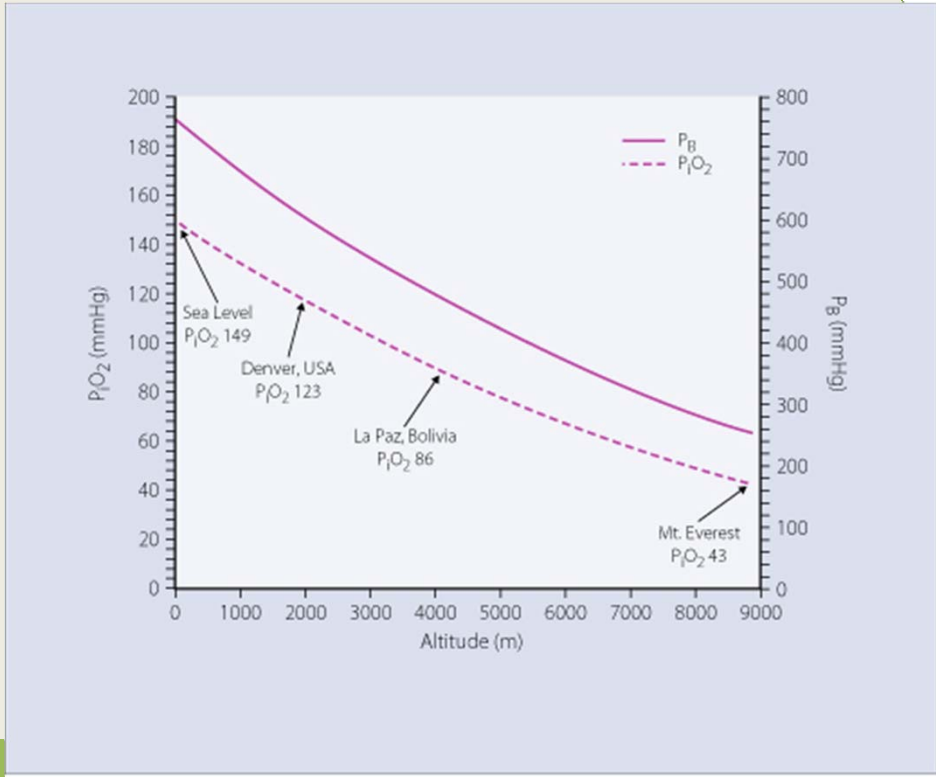
MIEKE CROUGHS
INSTITUTE OF TROPICAL MEDICINE
GGD HART VOOR BRABANT

Presentation

1. Acute Mountain Sickness in general
2. Preventive advice
3. Acute mountain sickness in travelers who consulted a travel clinic (ITM & GGD):
    1. Compliance with recommendations
    2. Incidence and risk factors
    3. Acetazolamide
    4. Conclusion

Normal acclimatization

- Hyperventilation
- Shortness of breath with exercise
- Periodic breathing night
- Awakening frequently
- Slight ↑ bloodpressure
- VC pulmonary vessels
- Urination ↑



Altitude sickness

Due to insufficient acclimatization:

- Acute mountain sickness (AMS)
- High altitude cerebral edema (HACE)

  change mental status, ataxia
- High altitude pulmonary edema (HAPE)

  dyspnea at rest, cough, chest tightness, weakness

Definition of AMS

Headache after a gain in altitude and at least one of the following symptoms:

- Anorexia, nausea, vomiting
- Fatigue or weakness
- Dizziness or lightheadedness
- Sleeping difficulty

AMS characteristics

- > 2000m (serious >3000)
- Genetically determined
- Starts after 1-12 hours
- Peaks after 16-24 hours
- DD: dehydration, exhaustion, migraine, hang-over

Recommendations

1. Sleep ≥ 2 nights between 1500 – 2500 m
2. Climb not more than 300 - 500 m/d
3. > 3000m: take acetazolamide along
4. Previous AMS: acetazolamide prevention
5. Never climb on with symptoms of AMS
6. Descend if serious or no improvement

Advice on medication

- Acetazolamide:
  - Accelerates acclimatization, no mask of symptoms
  - Treatment: 250 mg bid
  - Prevention: 125 or 250 mg bid ?

- Painkiller, antiemetic
- Dexamethasone (8 mg, 4 mg/6 h)
- Nifedipine (10 mg and 20 mg retard/ 6h)
- O2 / hyperbaric bag

Hyperbaric bag

Acute mountain sickness in travelers who consulted a pre-travel clinic*

N=744, median age 36 y

38% > 4000m

74% South-America

14% Medical problems

8% Cardiopulmonary disorder

9% Previous AMS

* *Croughs M, Van Gompel A, Van den Ende J. J Travel Med. 2011 Sept-Oct*

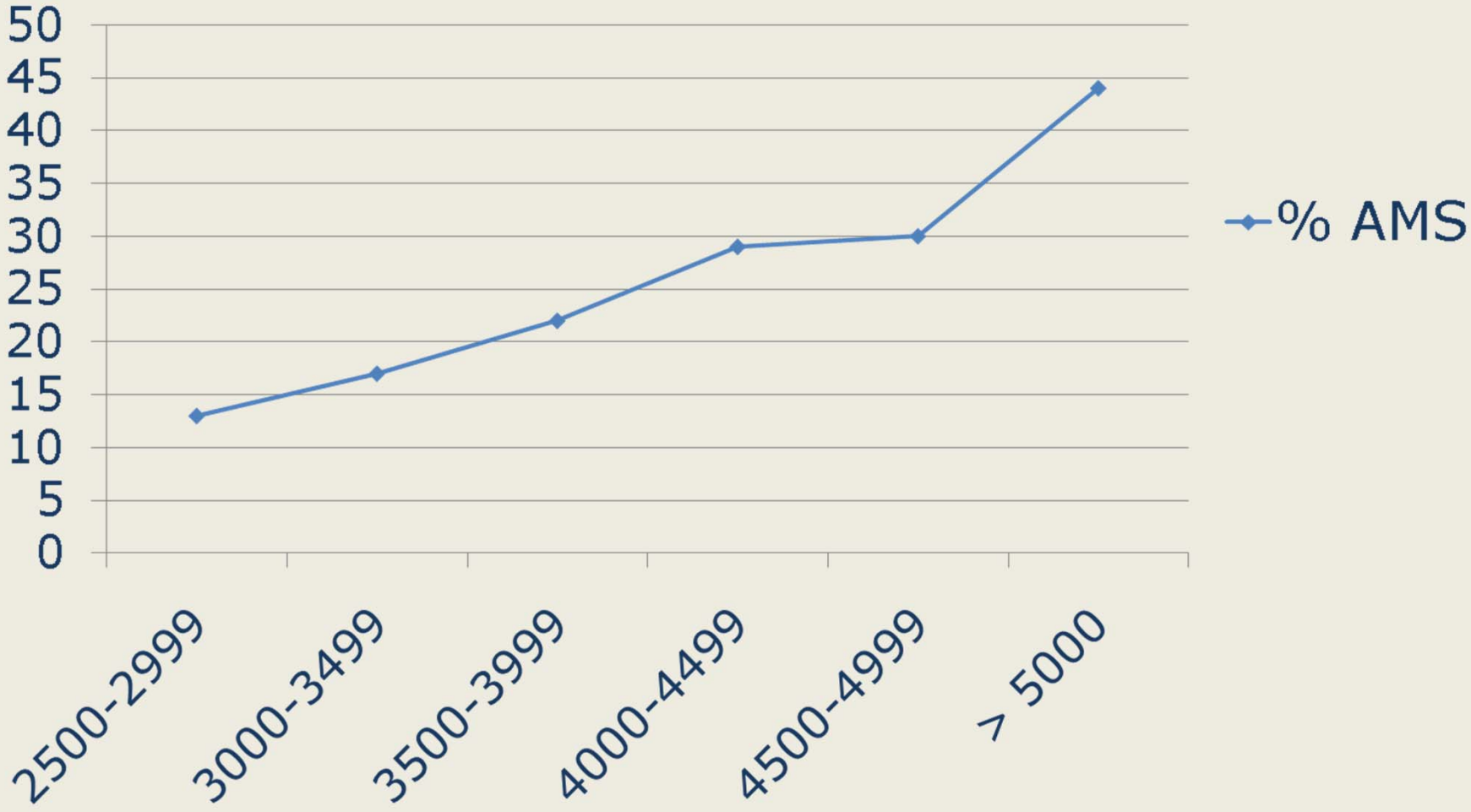
Complaints at altitude

74 % Complaints:

- 47 % Headache
- 44 % Shortness of breath
- 23 % Fatigue
- 14 % Nausea/vomiting
- 14 % Sleeping disorders
- 4 % Dizzy

25 % AMS

AMS Incidence and Altitude



Predictors of AMS

Predictors	Odds Ratio
Previous AMS	2.188
Female sex	1.614
Max. sleeping altitude / 500 m	1.197
Nights of acclimatization / night	0.940
Age / year	0.984

Compliance with preventive advice

21% Acetazolamide info not read or not clear

60% ≥ 2 nights 1500 – 2500 m

72% Took acetazolamide along

29% With previous AMS took acetazolamide prevention

57% Climbed > 500 m/ day

Compliance with curative advice

12 % Adapted travel schedule

53 % Did not climb on with symptoms!

74% Took medication:

55% analgesic

34 % acetazolamide (185 mg bid)

28 % other

Acetazolamide prevention

Prevention 125 mg bid: no effect on AMS incidence?

Basnyat B et al; Efficacy of Low-dose Acetazolamide (125 mg BID) for the Prophylaxis of Acute Mountain Sickness: A Prospective, Double-blind, Randomized, Placebo-controlled Trial. High Alt.Med.Biol

Carlsten, C. et al 2004; A dose-response study of acetazolamide for acute mountain sickness prophylaxis in vacationing tourists at 12,000 feet (3630 m). High Alt.Med.Biol.

Conclusions

- 25% of these travelers had AMS
- 5 risk factors
- Recommendations not well followed
- Use of acetazolamide not clear
- No preventive effect of acetazolamide 125 mg bid