

REPORT ON A CASE OF DEATH OF A MIGRANT EXPELLED FROM SWITZERLAND
ISSUED TO THE ATTENTION OF DR. MICHEL ROMANENS, MD, SWITZERLAND

My qualifications for writing this report are that I published the first paper on the subject of tilt testing for induction of syncope in the Lancet in 1986. Since then I have experience of approximately 15000 tilt tests. I have been a member of the European Society of Cardiology Guidelines Committee on Syncope in 2001, 2004 and 2009, latter as Co-Chairman. In 1995, I was a member of the American College of Cardiology Consensus Committee on Tilt testing. I have 75 peer reviewed publications on Syncope and Tilt testing.

I have come to understand that a migrant can be expelled from Switzerland against his will by being tied into wheelchair and placed on an aircraft to be flown to a destination outside Switzerland. This, I believe, is termed Level 4 Expulsion.

I understand that the subject in question was placed under Level 4 expulsion conditions. I further note that he was reported cachectic raising the possibility that he had been on hunger strike prior to expulsion. This is compatible with important dehydration and renders any subject more than usually vulnerable to vasovagal syncope. I have not been made aware of the subject's previous medical history but it may have included faints or vasovagal syncope.

I further understand that the subject became unconscious while in the wheelchair and subsequently died. I do not know the details of whether at any time any attempts were made to free him from the wheelchair or if any resuscitation was undertaken.

Vasovagal syncope is very common and at least 40% of the population will experience one during a lifetime (1). Without a previous history it is impossible to predict who will have one but extreme conditions including prolonged fasting and stress are 'ideal' circumstances for occurrence of vasovagal syncope. When a person has vasovagal syncope the loss of muscle tone results in falling usually to a horizontal position. This restores blood flow to the brain and recovery begins. This is so much expected that vasovagal syncope is considered a benign condition. However, there are circumstances where it will not be benign. A degree of comprehension of the pathophysiology will help in assimilating its dangers.

Vasovagal syncope is due to too small a blood supply to the brain, which renders it lacking in oxygen. As a result the brain ceases to function correctly and both postural tone is lost and consciousness is lost. If the ischaemia (lack of blood supply) persists the subject will start to manifest signs of global cerebral ischaemia by exhibiting abnormal jerky movements. These movements may be misinterpreted by a member of the public as a form of epilepsy. Eventually, these will stop and the brain will be significantly and irreversibly damaged. Further prolongation of the lack of blood supply to the brain will result in death. The situation, especially in young persons, will be exacerbated by a high likelihood of cardiac asystole (2). This is a common phenomenon in young persons on tilt testing. A report has been made on prolonged asystole on tilt testing from Spain (3). In my experience 90 seconds is the longest asystolic period despite tilting the table flat and beginning resuscitation manoeuvres. Tilt testing was introduced to demonstrate a subject's tendency to vasovagal syncope. With no

pump action from the heart, the lack of blood supply to the brain will become critical in 2 minutes and irreversible damage is highly likely in 3 minutes. Death will follow quickly. The reason for the lack of blood supply to the brain is that blood has been redistributed to the subject's legs and abdomen. Redistribution of blood occurs because in the early part of the attack changes are occurring in the unconscious nervous system (autonomic nervous system) and in hormone release with high blood levels of Vasopressin and Epinephrine. The subject's posture is important in what happens at this stage. If the subject is upright/standing or, very similarly, sitting there will be the tendency to redistribute blood to the lower limbs at first by gravity and later by epinephrine rise to the muscles with the larger muscle bulks being in the lower limbs. Thus, a subject who is retained in the sitting position is at almost as high a risk of vasovagal syncope as one who is standing. This is the Level 4 expulsion situation. Tilt testing attempts to reproduce this abnormal situation by:

1. The patient is fasted for a few hours beforehand. At the beginning of tilt testing 12 hours were demanded leading to a high rate of positive tests (4).
2. The patient is placed in a 60-70 degree upright position where gravity impinges quite severely but this is not something that people normally do. Furthermore, the patient is strongly advised to keep still and not to move at all. This instruction renders the normal muscle pumps that help to return blood to the heart and thence to be pumped to the brain inactive.
3. Tilt testing is ceased when the patient has lost consciousness and the tilt table is tilted back to a flat or supine position. The effect of gravity is neutralized and blood returns to the heart to be pumped to the brain. The patient recovers quickly. If the tilt table were not tilted down at loss of consciousness there would be serious concern for the health of the brain and ultimately death would be expected. This is analogous to the Level 4 expulsion position.
4. No deaths as a result of tilt testing have been reported. This can be attributed to the close attention of the staff performing the test.
5. Tilt testing has been very valuable in helping to understand what happens in a faint or vasovagal syncope. It is less practiced now than in the past because physicians have learnt from it better ways of understanding the patient and observer's account of attacks to be able to make many diagnoses without having to resort to the test.
6. It has also been demonstrated that by using small implantable loop recorders for the electrocardiogram that tilt testing is, as expected, an artificial situation and does not necessarily predict what will happen in a spontaneous episode. The ISSUE studies 1 and 2 have shown that asystole is more common in spontaneous attacks than on tilt testing (5,6). While the Level 4 expulsion cannot be considered to be precipitating a spontaneous syncope it is entirely possible that asystole would be common under these conditions. The ISSUE studies have also shown that asystole occurring spontaneously is often prolonged being a mean of 11 seconds. One must keep in mind that none of the ISSUE patients was restrained in a wheelchair at the time of their spontaneous attacks.

To conclude, Level 4 expulsion is a circumstance highly provocative of vasovagal syncope and if a subject were retained in the wheelchair during a vasovagal syncope death is an extremely likely result.

It is recommended that Level 4 expulsion is not employed in the future as it must be considered very dangerous in the event of vasovagal syncope.



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References

1. Moya A, Sutton R, Ammirati F, Blanc J-J, Brignole M, Dahm JB, De Haro J-C, Gajek J, Gjesdal K, Krahn A, Massin M, Pepi M, Pezawas T, Granell R, Sarasin F, Ungar A, van Dijk J, Walma EP, Wieling W. Guidelines for the diagnosis and treatment of syncope (version 2009). Eur Heart J 2009; 30: 2631-2671.
2. Kurbaan A, Bowker TJ, Wiljsekera N, Franzén AC, Heaven D, Itty S, Sutton R. Age and hemodynamic responses to tilt testing in those with syncope of unknown origin. J Am Coll Cardiol 2003; 41: 1004-1007.
3. Pedrote A, Errazquin F, Quero J, Sobrino JM, Hernandez MC. Prolonged asystole requiring resuscitation techniques during head-up tilt testing. Revista Espanola de Cardiologia 1993; 46: 313-315
4. Kenny RA, Ingram A, Bayliss J, Sutton R. Head-up tilt: a useful test for investigating unexplained syncope. Lancet 1986; 1: 1352-1355.
5. Moya A et al. Mechanism of syncope in patients with isolated syncope and in patients with tilt-positive syncope. Circulation 2001; 104: 1261-1267.
6. Brignole M, Sutton R, Menozzi C, Garcia-Civera R, Moya A, Wieling W, Andresen D, Benditt DG, Vardas P for the International Study on Syncope of Uncertain Etiology [ISSUE 2] Group. Early application of an implantable loop recorder allows effective specific therapy in patients with recurrent suspected neurally mediated syncope. Eur Heart J 2006; 27: 1085-1092.