Letters to the Editor


Anthropometric characteristics and tilt table test results

Tilt table tests are important in the cardiological diagnostics of syncope but have also gained interest in other specialties such as sports medicine. The data presented by Baron-Esquivias et al. are very important and could serve as an excellent base and reference for further investigations.

As pointed out by the authors, the protocol influences the outcome of the tilt table test. Another factor may be the physical fitness of the patient. Such investigations showed that athletes tolerated tilt table testing worse than non-athletes. The reason for this paradox can be explained by an increase in capillary filtration rate in trained subjects. Generally, individual confounding factors, which allow the classification of different response types, may be substantial. There is one additional aspect which has not yet been investigated explicitly: the influence of anthropometric characteristics. We re-evaluated a tilt table test in 24 healthy male volunteers [age: 31–8 years (SD 6–4), weight: 74.9 kg (SD 9.9) and height: 177.7 cm (SD 7.7)]. Following a simple protocol the volunteers were brought from a horizontal to a vertical position within 10 s. Heart rate (HR beats · min⁻¹) was monitored for approximately 10 min and evaluated statistically. Blood pressure was measured regularly for safety reasons. The difference in heart rate (ΔHR = HRmax – HR before) and the time of maximum heart rate (THRmax) were determined. On an average, the HR increased 22.4 beats · min⁻¹ (SD 9.4) and the THRmax was 3.3 min (SD 1.3). The results of the correlation analysis is presented in Table 1. Although weight or height are theoretically related to the increase in HR or THRmax, respectively, the correlations we found in our small sample were not significant. No significant multiple regression models for ΔHR or THRmax (dependent variables) with regard to anthropometric characteristics (independent variables) could be calculated either.

With regard to sports sciences, further evaluation of the huge database presented by the authors with regard to the course of heart rate or blood pressure and possible influencing variables would be very helpful. This could help to find corresponding normal values and possibly allow a better diagnostic prediction of the results.

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References


A reply

We appreciate the interest of Dr H. J. Koch et al. in our article and the opportunity to respond. As they state, sports medicine has become more involved in syncope and in the tilt table test. The sports medicine literature recognizes the term exercise-associated collapse (EAC) to describe athletes who are unable to stand or walk unaided as a result of light-headedness, feeling faint, dizziness or syncope. Also, it is recognized that syncope that occurs during exercise tends to be more ominous than that occurring in the post-exertional state. However, Calkins et al. successfully used pharmacologic therapy in 10 patients with vasodepressor syncope during or immediately after exercise, suggesting that those patients with exertional syncope might be similar to the general population with syncope, and that those patients can safely continue to participate in athletics. Finally, the data presented by Dr Koch et al. are not definitive. For example, Mtinangi et al. proved that exercise training has a role in the management of patients with syncope and poor orthostatic tolerance, with improvement of symptoms and an increase in orthostatic tolerance without resting blood pressure. Nevertheless, as Dr Koch et al. point out, anthropometric characteristics that influence head-up tilt test results are rarely reported, and further studies must be designed to improve our knowledge of this frequent but obscure and unknown disease.

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References


Table 1 Pairwise empiric correlation coefficients

<table>
<thead>
<tr>
<th>ΔHR (beats · min⁻¹)</th>
<th>THRmax (min)</th>
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<tr>
<td>Age (years)</td>
<td>0.28</td>
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<tr>
<td>Weight (kg)</td>
<td>0.04</td>
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<tr>
<td>Height (cm)</td>
<td>0.34</td>
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