

4H & 4T is a needed score or is a checklist for inpatients at risk of cardiac arrest?

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Background

Non-cardiac and reversible causes of cardiac arrest may be summarized with the acronym 4T&4H (i.e. hypoxia, hypo-hyperkalaemia, hypoglycaemia, hypothermia-hyperthermia, hypovolemic, toxins, thrombosis, tamponade, tension pneumothorax). Usually, one of these causes is sufficient to induce cardiac arrest but in frail patients more than one of these conditions may occur simultaneously and may induce adverse outcome and prognosis of inpatients. We here report an intriguing case in which multiple causes

Case history

GC a 52 yy was a homeless admitted in hospital for a septic fever of unknown origin. The patient showed low blood pressure (i.e. 90\50 mmHg), tachycardia (i.e. 105 bpm) with an ECG in sinus rhythm with uncomplete RBBB, TC 38°C, pulsoxymetry 84%AA, he showed a low BMI (i.e.<19). He was next to be admitted in the unit of internal medicine when suddenly went in cardiac arrest because a decrease of oxygen saturation; cardiac arrest was managed according to ALS and oxygen support with clinic success. After cardiac rianimation waiting again the access into Internal a TLOC with PEA occurred and a value of 24% of glycaemia was detected. A pharmacological therapeutic support with

intravenous hypertonic glucose and steroids was performed and TLOC and PEA disappeared. The patient was admitted in internal medicine after 30 minutes but few minutes after a new cardiac arrest occurred and during ALS also a cardiac ultrasound scan was performed revealing a right atrial thrombus. Immediately thrombolysis with tenecteplase 6000 units iv bolus.

The patient suddenly improved increasing blood pressure (PA 110\60 mmhg) with HRF 80 bpm, with a SI > 1 and pulsoxymetry 95%AA.

Discussion

Non-cardiac reversible causes of cardiac arrest usually summarized with 4H and 4T acronym may interest nearly 1-1.5 people each inpatients.

Yet being the cohort of inpatients at major risk of sudden death and cardiac arrest because frail patients are frequently admitted in hospital, more conditions at risk for 4H and 4T may be simultaneously present. Therefore, as in the case we described also after ALS support after a cardiac arrest a thorough check of further causes that may induce a new cardiac arrest should be evaluated and the acronym 4T and 4H should be used also as checklist after ALS.