

**Is ECG monitoring mandatory during exercise training in cardiac rehabilitation ?**

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Aim - To determine whether routine ECG monitoring is required during cardiac rehabilitation phase II & III exercise training sessions.

Background - According to the guidelines for cardiac rehabilitation, ECG monitoring is recommended for early exercise training, and in high risk patients in particular. The rate of severe complications during supervised exercise training has been reduced during the years, from 1 cardiac arrest/33,000 training hours to 1/268,500 training hours, and fatalities from 1/89,000 to 1/784,000 training hours. Complications rates were found to be associated with the type of ECG monitoring during exercise sessions (continuous, intermittent, graduated), and center experience.

Methods - Data from 4922 patients files monitored with the intermittent program (Polar transmitter) during the period 1.1.1999 - 1.11.2009 and 16,720 exercise tests (EXT) were evaluated. The rate of SCD, fatal/non fatal arrest, fatal/non fatal MI, significant atrial/ventricular arrhythmias, association with patient risk category and time elapsed from program initiation to the time of complication occurrence were assessed.

Results - A total of 221,490 training hours were recorded (mean adherence time = 17 weeks +/- 2.5 s.d., 160 min/week/pt, and 45.2+/-6.6 exercise hours/pt/ program). Deaths - 0/221,490, aborted SCD - 3/221,490 (0.00001%), 1 during training & 2 during EXT's (2/16720 = 0.0001%), PAF -5/221,490 during training, 7/16,720 during EXT's (0.0004%), NSVT & Couplets - 39 during EXT's (0.002%), MI - 0/221,490 during training and 4/17,620 during EXT's. No association found between events and patients risk category, or with time elapsed from program initiation.

Conclusion - Due to the extremely low rate of serious events, the value of ECG monitoring during exercise training for limiting cardiac complications is very low. The intermittent monitored type seems to be sufficient and safe for phase II and III rehabilitation program regardless of patient risk category.