 Conclusion.— The benefits of cardiac rehabilitation have been demonstrated for several years by different studies showing the decrease in mortality from 25 to 35%, complications and improving the physical capabilities and quality of life. The aim of our study was to demonstrate the strategy to adopt when carrying out cardiac rehabilitation and cardiovascular functional benefits in patients with Phase II coronary artery disease.

 Patients and methods.— This study was a retrospective analysis spread over 3 years, which focused on patients having undergone angioplasty or coronary surgery. An initial medical examination was carried out detailing history, surgical and medicine treatments received. The assessment was based mainly on the stress test, the 6-min walk test, on the assessment of risk factors and the quality of life by the SF36.

 The program was spread over an average of 20 outpatient sessions with three sessions per week, involving segmental strengthening, central solicitation in power and endurance training and risk factors stabilization.

 Results.— Our population included 34 patients, (30 were male), aged on average 60 years 50% had hypertension, diabetes or dyslipidemia and 60% were over 60 years, which focused on patients having undergone angioplasty or coronary surgery.

 A test battery was used in follow-up to assess cardiovascular and quality of life: the 6-min walk test, the quality of life by the SF36, the dyslipidemia and activity level assessment by the Physical Activity Scale. At the end of the program, we measured the physical fitness by the 6-min walk test and quality of life by the SF36. These tests were repeated after three months of home training.

 The average increase was 150 m in the 6-min walk test. The physical fitness was improved in the group (P < 0.05). The quality of life was improved (P < 0.05) in the group. The risk factors were also reduced in the group (P < 0.05). The patients were satisfied with the program (P < 0.05).

 Discussion.— Our results demonstrate the effectiveness of cardiac rehabilitation in the group compared to the control group. Cardiac rehabilitation can be proposed for all coronary patients with dilatation, surgery or medical treatment. It requires a comprehensive and multidisciplinary care program. It enables improving the quality of life, performances in effort and psychological profile, while contributing to a better social reintegration.


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 The TexiSense « Smart Sock » - a device for a daily prevention of pressure ulcers in the diabetic foot

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 Goals.— The term « diabetic foot » refers to a set of foot pathologies essentially stemming from the neuropathy and arteriopathy of the lower limb associated with diabetes mellitus. Chronic ischemia weakens the healing potential and favors the development of wounds on a more vulnerable foot. Friction or repeated micro-traumas can lead to an ulceration (which in turn can end up in an amputation) that will remain unnoticed because of the somato-sensory deficiency. The current prevention techniques largely relying on visual inspection of the foot and enhancement of the foot/insole interface are not fully satisfying as the prevalence of plantar ulcers remains very high.

 Patients and methods.— A device for the prevention of plantar ulcers—called « Smart Sock » is described. It consists of:

 – a sock made of a 100% textile pressure sensing fabric developed by the TexiSense company;
 – a microcontroller running a biomechanical model of the soft tissues of the foot of the diabetic person;
 – a vibrating watch (and eventually a smartphone) used to warn the bearer if a pressure pattern threatens the soft tissues integrity.

 Results.— Internal overpressures within the soft tissues, especially nearby bony prominences are likely to develop into deep foot ulcerations. The biomechanical model gives an estimation of their magnitude based on the external pressures measured by the sock/sensor. This modeling relies on a faithful representation of the morphology of the diabetic subject. The device sends a vibro-tactile alert in case of occasional overpressure or excessive stress dose accumulated during daytime activities.

 Discussion.— The continuous use of the device, compatible with daytime activities of the diabetic person, helps compensate for the lack of attention in the prevention of pressure ulcer formation. The TexiSense “Smart Sock” can be designed so that when worn, pressure sensors fall onto sensitive anatomical areas such as the dorsal side of the toes or the posterior side of the heel, which makes it also possible to monitor regions located outside the sole of the foot.