



Medical Devices

Neonatal monitoring device

A Research Group from the Andalusian Public Health System (SSPA *as per its Spanish acronyms*), jointly with a group of researchers in the University of Cadiz, have developed a new device intended for neonatal monitoring, with the aim of i) minimizing the false alarms and ii) allowing the control of water balance in new-borns without taking the baby out of the incubator.



Description

Currently, the percentage of new-borns, especially those preterm babies who are treated with non-invasive methods, is increasingly growing. Among the control methods used, we may include the pulse-oximetry, which provides on-going information about the oxygen saturation level and about the heart rate of the new-born when the necessary conditions are met. This non-invasive method offers a number of advantages as it avoids the prospective infections or pains for the new-borns. However, it involves an important inconvenience related with the signal loss of the pulse-oximeter due to the new-born's movement, which leads the alarms to go off as if the new-born had suffered a severe bradycardia or cardiac arrest.

In order to solve this inconvenience, it has been developed a new monitoring device which minimizes the false alarms of the pulse oximeter caused by the new-born movements. This device combines the information achieved by the pulse oximeter jointly with the information received from some load cells which detect the new-born movements, therefore, the alarm will just go off once the pulse oximeter signal is lost and simultaneously, the new-born movements are not detected. This does not just avoid the false alarms but also reinforces the reliability of the alarms which might arise, since those would just go off when both conditions are met, an anomalous sign of the pulse oximeter as well as the new-born immobility. Besides, the neonatal rooms usually count on external baby scales weighing balances, and therefore, it might be necessary to take the baby out of the incubator in order to weight the new-born. This action might be an extremely delicate process which might be advised to be avoided in certain cases, and for such reason, this device counts on a processing method adapted to translate into weight the signal received from the load cells, thus allowing the water balance control. This aspect is quite important since a positive water balance result might cause heart failure. Furthermore, the water balance control enables, among others, the calculation of medicine doses that the new-born might need.



Advantages

This device does not just avoid false alarms caused by the new-borns movements, but it also reinforces the reliability of the alarms which might go off, as the device avoids the real alarm masking which might cause a delay when attending a new-born if this is confused with a false alarm.

Another advantage is that the fact of knowing the new-born weight enables to make a better and more accurate water balance control (it is an approximate control currently) which must be zero at all times. This water balance control might be carried out without need of taking the new-born out of the incubator.



Intellectual Property

This technology is protected by utility model.



Aims

We are looking for a partner interested in a license and/or a collaboration agreement to further develop and exploit this innovative technology.



Classification

Area: Medical device