



The objective of this preliminary study is to use infrared thermography to discern whether there is an infection in patients with a central venous catheter and if so, to undertake a close follow-up of its evolution, after administering a therapy” Benavent Casanova et al (2019).

Abstract:

Children affected by oncological diseases are often fitted with central venous catheters. Catheter infection is a frequent complication, sometimes accompanied by thrombosis. We designed a case/control-type pilot study of children with oncological diseases fitted with a central venous catheter. The objective of this preliminary study is to use infrared thermography to discern whether there is an infection in patients with a central venous catheter and if so, to undertake a close follow-up of its evolution, after administering a therapy. We measured Thermal Asymmetry by mean and maximum temperatures (Temperature affected ROI - Temperature contralateral ROI). In all cases with catheter infection, Thermal Asymmetry values were higher than in controls without infection, allowing us to assess improvement after starting the treatment. These preliminary results are satisfactory because they reflect the advantages of using infrared thermography on oncological child patients, as it is a harmless, non-contact, accessible and quick technique, allowing us to reduce the use of ionizing radiation and quantify the clinical signs of inflammation, which are otherwise only qualitatively detectable in the clinical examination.

By doing so, it may be possible to anticipate infection and provide early treatment, and, moreover, to observe whether there is any complication after starting a treatment. More studies need to be undertaken with an extensive paediatric population to establish reference values.

You may also be interested in...

Thermography as an early prediction tool for extravasation

Near-infrared technology used to improve venipuncture success

Haemodialysis infection risk assessment tool

Reference:

Benavent Casanova, O., Benavente Gómez, N., Priego Quesada, J.I., Galindo Gonzalez, C.M., Cibrian Ortiz de Anda, R.M., Salvador Palmero, R. and Núñez Gómez, F. (2019) Application of infrared thermography in diagnosing peripherally inserted central venous catheter infections in children with cancer. *Physiological Measurement*. January 30th. .

doi: 10.1088/1361-6579/ab031a.

