Cardiac PET for translational imaging.

Abstract:

All along, translational cardiovascular research has been dependent on non-invasive imaging (such as single-photon emission computed tomography (SPECT), positron emission tomography (PET), computed tomography (CT), echocardiography, or magnetic resonance imaging (MRI)), as these techniques allow the assessment of surrogate markers in intact living organisms non-invasively. PET offers the advantages of high sensitivity; the capability for longitudinal, quantitative imaging; and that an armamentarium of promising radiotracers is readily available. All commercially available PET scanners are equipped with a CT component, and thus, the often cited disadvantage of a lack of morphologic correlation does not really count anymore. This review aims to give an outline on PET as a promising tool for translational research in cardiology as dedicated preclinical systems with virtually the same imaging features as those used in clinical imaging allows the straightforward concept of "bench to bedside."