Normal stress databases in myocardial perfusion scintigraphy – how many subjects do you need? - DTU Orbit (25/07/2019)

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Commercial normal stress databases in myocardial perfusion scintigraphy (MPS) commonly consist of 30–40 individuals. The aim of the study was to determine how many subjects are needed. Four normal stress databases were developed using patients who underwent 99mTc MPS: non-corrected images (NC) for male, NC for female, attenuation-corrected images (AC) for male and AC for female subjects. 126 male and 205 female subjects were included. The normal database was created by alternatingly computing the mean of all normal subjects and normalizing the subjects with respect to this mean, until convergence. Coefficients of variation (CV) were created for increasing number of included patients in the four different normal stress databases. Normal stress databases with <35 subjects had a high CV. Mean CV –2 standard deviations (SD) decreased with 28% between two and five included subjects, 71% between two and 35 subjects and 83% between two and 100 included subjects for NC man. We conclude that the commonly used 30–40 individuals for making a normal stress database might not be enough due to the high CV. We propose that normal stress databases should consist of more than 30–40 individuals, preferably more than 50 individuals, both for NC and AC studies.

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