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Letter to the Editor

Ampanozi G, Krinke E, Laberke P, Schweitzer W, Thali M, Ebert L. Comparing fist size to heart size is not a viable technique to assess cardiomegaly. *Cardiovascular Pathology*. 2018; 36:1-5

Dear Editor,

We read with great attention the article "Comparing fist size to heart size is not a viable technique to assess cardiomegaly" [1]. We appreciate Ampanozi and colleagues for researching an area which has been given limited attention by scholars. However, we have a few comments regarding some specifics in the article.

First, the authors indicated that no scientific literature to date correlated the "fist size" to the "heart size." However, we would like to bring their attention to the paper of Fakoya et al., the first study which attempted to find a relationship between the "fist size" and the "heart size" [2]. Fakoya et al. in their study measured the palm diameter at the "fist crease" of both hands, and the study showed that both palmar diameters correlated with the heart diameter (measured using the transthoracic echocardiogram) with a $P<.05$ [2].

Second, the authors mentioned that pathologists "commonly" use the fist-heart dimensions in their autopsy reports to indicate cardiomegaly. In current practice, however, most pathologists measure the heart weight. Although Ampanozi et al. showed that the fist measurement can be done using the CT volumes, this may not be a current standard of measurement for autopsies. We also would recommend that references be reviewed that were used to support the methodology that pathologists use fist to heart measurement as a current practice to indicate cardiomegaly. The references appeared to show paucity of information to support the authors' suggested methodology.

Lastly, the authors did not consider several variables such as age, sex, and height which will contribute to the dimension of the fist/heart relationship. The age factor is a recommended consideration in this study given the small sample size used, thus bringing queries to the power of this kind of anthropometric study. One of the observations in the Fakoya et al. study which corroborates previous studies is that age has a direct proportionality with heart diameter up to the age of 50 years, when the heart achieves a uniform size [3]. The Fakoya et al. study further demonstrated a 2% increase in heart diameter up to the age of 55 years [2] and links this increase to myocyte regeneration. Of interest, a recent study by Vicinanza et al. in 2017 demonstrated that approximately 2% of the c-kit-positive myocardial cells possess a multipotent clonogenic cardiac progenitor cell characteristic [4]. This factor of "2%" for cardiomyocyte multipotency appears relatable to the factor of "2%" increase in heart diameter up to 50 years of age.

Finding a matching heart can sometimes be a challenge for the transplantation team as the ideal metrics for the donor–recipient size matching are yet unknown [5]. It has been shown that the size of the heart impacts the outcome of the transplantation [5]. Although body surface area (BSA) has been the generally accepted standard, this simple palm (fist crease)/heart measurement may prove very useful for a quick match assessment for transplantation especially for those below the age of 50 years. In addition, the palm/heart measurement in conjunction with BSA may be successfully used to customize the heart size of individuals and thus provide an enhanced tool for the diagnosis of cardiomegaly.

In conclusion, we find this article timely and exciting as it may further promote scientific interest in the agelong saying of "the fist size is about the size of the heart," and hopefully, further research might reveal other possible relationships that exist between fist and heart measurements.

Conflict of interest

The authors declare that there is no conflict of interest.

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References

[1] Ampanozi G, Krinke E, Laberke P, Schweitzer W, Thali M, Ebert L. Comparing fist size to heart size is not a viable technique to assess cardiomegaly. Cardiovasc Pathol 2018; 36:1–5.
[2] Fakoya AOJ, Otohinoyi DA, Marcelle T, Yusuf J. The palm-heart diameter: a prospective simple screening tool for identifying heart enlargement. Open Access Maced J Med Sci 2017;5(7).
[3] Oberman A, Myers AR, Karunas TM, Epstein FH. Heart size of adults in a natural population—Tecumseh, Michigan: variation by sex, age, height, and weight. Circulation 1967;35(4):724–33 [Internet, Ovid Technologies (Wolters Kluwer Health)].
[4] Vicinanza C, Aquila I, Scalise M, Cristiano F, Marino F, Cianflone E, et al. Adult cardiac stem cells are multipotent and robustly myogenic: c-kit expression is necessary but not sufficient for their identification. Cell Death Differ 2017;24:2101–16.
[5] Murphy K, Kransdorf EP, Wilansky S, Pajaro OE. Impact of size mismatch on heart transplant outcomes. J Heart Lung Transplant 2016;35(4S):S214: 575.

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