References

To the Editor:

The article of Stanton A. Glantz on biostatistics1 as the first paper of a new decade appeared at the right time. Too many investigators misuse the statistics and hence support erroneous conclusions. I wonder why the author did not include a very simple, easy-to-recognize but often found mistake, even in Circulation. The figure 4 in the article of Crawford et al.2 in the same number of Circulation illustrates the problem: A linear correlation coefficient of r = 0.80 is calculated, although the two variables are by no means distributed normally. One assumption for the correlation coefficient is a bivariate normal distribution of the sample. Admittedly, biologic samples are rarely distributed normally, but at least the values should approximate a normal distribution. Without the three values on the left of figure 4 (this excludes 3/24 = 12.5% of all values only), the correlation coefficient would be less than 0.5, hence meaningless. It is a nuisance to calculate a linear correlation coefficient with a cloud of values on one side and only three values on the other. If the sample does not approximate a bivariate normal distribution, the rank correlation coefficient of Spearman is the appropriate calculation.

Figure 11 of the article of Carr et al.3 and figure 4 of the article of Folland et al.4 show that the mistake happens quite often. In these cases the calculation of the correlation coefficient should be left undone.

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References

Anatomic Variants of AV Junction and Surgery of Supraventricular Arrhythmias

To the Editor:

I read with great interest the article by Klein et al. (Circulation 61: 8, 1980) on cryosurgical ablation of atrioventricular (AV) node and His bundle in patients with intractable supraventricular tachyarrhythmias. As a morphologist, I am concerned with a few anatomic topics that can be cogent to the success and safety of this type of surgery.

I agree with the assumption that, in the five patients in whom permanent AV block was achieved, technical failure was probably caused by some anatomic variants of the AV junction. I disagree, however, with the suggestions prompted to overcome the inherent difficulties, and particularly with the emphasis on the “interatrial” location of the AV node with extensive continuity of it toward the left, into the atrium and the mitral annulus.

Such a novel topographic-anatomic setting can not be taken for granted, for the following theoretical and factual reasons: (1) The assumption mainly relies on an article1 that reiterates the denial of the classic concept2 of the right atrial location of the proximal AV junction, only to conclude with the commonplace of an intra- (not inter)- atrial belonging. Which could even appear an unfortunate misprint (in the original Liden edition1), were it not for the fact that the same authors of the quoted paper,1 together with the present writer et al.5 had just held the AV junctional area to be concentrated on the right atrial aspect of the tricuspid fibrosus dexter. Then, is it “all right” with the textbook,2 or not?

An interesting dispute in anatomy, but a very misleading one in surgery, as yet.

(2) Connections between AV node and left atrium are well known,2 but an extensive continuity of the AV node into the mitral annulus and left atrial muscle should be regarded, in my opinion, as an exceptional abnormality, and not as a mere variant of the AV junction, in hearts free from gross malformations. In 100 human conducting systems I examined,2 I have never noticed any significant left displacement of the AV node, nor any important connection of it to the left atrial myocardium.

Among variants in AV junction’s layout, of worthwhish interest from surgeons, I think I can point out the following ones: “Low AV node” (transversally aligned to the ventricular septum) (fig. 1), “penetrating AV node” (entering the pars membranacea septi), “intramural His bundle” (bifurcating within the ventricular septal myocardium) (fig. 2), and “long left-sided His bundle” (traveling and bifurcating beneath the left septal endocardium).

Variants of the central fibrous skeleton of the heart underlie, sometimes, those of the AV junction.

Atrio-AV nodal connections constantly and largely prevailed on the right aspect of the AV node; among these, namely, James’ (or atriofascicular) fibers, which have an important bearing on reciprocating tachyarrhythmias, suitable for surgical management.3 From the left of the AV junction only Mahaim’s (node- and/or...
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_Circulation_. 1980;62:916-917
doi: 10.1161/01.CIR.62.4.916

_Circulation_ is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on
the World Wide Web at:
http://circ.ahajournals.org/content/62/4/916.citation

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