Proposal for the Standardization of the Lead System on Vectorcardiography

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There are many lead systems in vectorcardiography. The first lead system for the vectorcardiography to be able to get 3 principal planes named frontal view, side view and horizontal view appeared as Kimura's lead system in 1939. In this lead system 3 electrodes were placed on the front of thorax as like as Schellong's lead system. The right electrode for X component was placed on right medioclavicular line at second interspace and the left electrode was placed on midline of between left medioclavicular line and left anterior axillar line at the same height of the right electrode. For Y component the left electrode for X component was used as upper electrode and the third electrode was placed as the lower electrode at the point (that was) more half way lower than the height of apex beat from the place for upper electrode. For Z component the left electrode for X component was used as the anterior electrode and the posterior electrode was placed on the backside of the anterior electrode. Namely, Kimura's lead system is the cube system having a common electrode at left upper part of frontal thorax and gets Y and Z components at the left side of thorax.

Afterwards Duchosal-Sulzer's lead system and its modification, Grishman's lead system were published. They are the cube systems having a common electrode at the right lower part of the backside of thorax, and get Y and Z components at the right side of thorax.

Kimura's lead system getting Y and Z components at the left side of thorax is the suitable lead system for the diagnosis on the change of left heart, because the change of left heart is emphasized in this lead system.

In Duchosal-Sulzer's lead system or Grishman's lead system, the same can be said on the right heart.

Corrected orthogonal lead systems such as Takayasu's, Frank's Schmitt's and so on were introduced as the lead systems to be able to

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get the correct reflection of heart vector. But the corrected orthogonal lead system is not always suitable to be able to recognize the pathologic state in patient.

At this stage for the clinical use of vectorcardiography, Kimura's lead system for left heart, Duchosal-Grishman's lead system for right heart and one of corrected orthogonal lead systems should be applied in routine.