Reviewer’s report

Title: Relationship between postprandial changes in cardiac left ventricular function, glucose and insulin concentrations, gastric emptying, and satiety in healthy subjects

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Reviewer: Kent Emilsson

Reviewer’s report:

The aims of the manuscript are of interest but the manuscript is not suitable for publication in its present form.

Major Compulsory Revisions

Page 2: Background: Sentence number two has to be changed “The purpose of this study was to study the postprandial changes in left ventricular (LV) longitudinal systolic function, and systolic and diastolic functions…” Systolic function is mentioned twice. I assume that the authors mean the systolic function in longitudinal and in short axis direction but in that case they also should write that!

Page 2: Methods: Sentence number two “…fractional shortening (FS), systolic…..were measured in the septal (s) and lateral (l) walls.” I don’t believe that FS was measured in the septal and lateral walls, FS is not a measure of velocities in the wall as the other parameters are!

Page 2: Results: Last sentence beginning with “The data suggest slightly…” could be omitted, it doesn’t make any sense.

Page 3, last passage: “The systolic longitudinal ventricular velocity of a myocardial segment measured with TDI reflects the motion of the LV, which is an important component of systolic function (11), and is correlated with the LV ejection fraction (12)”. This sentence and its references are somewhat misleading. Pai et al (1991) didn’t use TDI or measure longitudinal velocities, which one can think when reading the text. The systolic long-axis shortening, that is, mitral annulus motion, is correlated with LVEF as studied by for instance Pai et al or Emilsson et al (Emilsson K, Alam M, Wandt B. The relation between mitral annulus motion and ejection fraction: A nonlinear function. J Am Soc Echocardiogr 2000;13:896-901).

Page 5: Methods: In the last sentence it has been written that “The LV FS and SV were measured, and the LV CO was calculated…”, however nothing is mentioned in “Results” about SV or LV CO, which would have been of large interest and should be added.
Page 6: First passage: The described different ways to measure the longitudinal velocities could be shortened.

Page 7: Results: I miss the measured and calculated values of SV and LV CO, which together with the other measurements of the left ventricle should be dealt with before the postprandial glucose and insulin response, gastric emptying rate and satiety. It is not so surprising that glucose and insulin levels in the blood, gastric emptying rate and satiety is significantly higher after a meal – what is new about that??

Pages 9-11: Discussion: There is much repeating of what is already written in the “Result” section, especially on page 10, the second passage. There is no sufficient discussion about how glucose and insulin may have effect on the different measured parameters of longitudinal velocities. Why is there an increase of S, E and A? And why does FS increase? It is written that “It is known that insulin has hemodynamic effects, such as positive chronotropic and inotropic effects on the heart” but it should preferably be discussed more about how it effects the measured velocities. Is there a connection between the innervation of the heart and the different muscle layers that can give an explanation? The longitudinal fibres are mainly located subendocardially. Theory why postprandial changes in glucose levels are correlated to E’I and insulin level to A’s?

Why are not SV and LV CO analysed and discussed?

Page 11: Another limitation to the study could also be that some of the patients were smokers and some snuffers since both smoking and taking snuff may have effect on the diastolic function of the heart, which might also have influenced some of the results (Alam M, Samad BA, Wardell J, Andersson E, Höglund C, Nordlander R. Acute effects of smoking on diastolic function in healthy participants: studies by conventional doppler echocardiography and doppler tissue imaging. J Am Soc Echocardiogr. 2002 Oct;15(10 Pt 2):1232-7).

Minor Essential Revisions

Page 3, last passage: [0] before “ventricular velocity” could be omitted.

Figures 1 and 3: What is “ab”? It is not mentioned in the legend.

Figure 4: What is “a” and “ab” in the figure? They are not mentioned in the legend.

Discretionary Revisions

Page 4: Methods: Nothing is said about heart rhythm, perhaps it should be emphasized that all subjects were in sinus rhythm.

Page 9: Discussion: The sentence “The data also suggested a slightly higher postprandial value…”, this sentence belongs to the “Result” section and not to “Discussion”!
Page 11: Conclusion: It would have been of interest to know how many hours before the echocardiographic exam one shouldn’t eat.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.