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Understanding the differences among inotropes

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Dear Editor,

We read with interest the excellent concept of understanding the differences among inotropes by Dr. Arrigo and Mebazaa [1], but what are missing are the goals of inotropic therapy in patients with cardiogenic and/or septic shock and the differences between the substances to reach these goals. This is important, since it was shown that dobutamine, despite its positive effect on increasing cardiac output, is not associated with improved mortality in patients with heart failure, and there is even a suggestion of increased mortality associated with its use [2]. The

factors leading to this negative effect are multiple: one important issue could be a missing or even a negative effect on liver function induced by dobutamin in these patients. Cardiogenic shock is associated with decreased liver blood flow and function, and increased cytokine production [3]. The importance of the gut–liver axis in these situations is underlined by the fact that cytokines are predominantly produced by the Kupffer cells. In this situation, dobutamin does not improve liver blood flow. Indeed, in one study of dobutamine therapy for patients with cardiogenic shock, even a trend towards decreased liver blood flow was observed [4]. In contrast, levosimendan has been shown to increase blood flow to the small intestine and liver in anesthetized dogs. In patients with advanced decompensated heart failure [5] and septic shock, levosimendan increased liver blood flow and decreased pro-inflammatory cytokine levels, which could not be seen in patients treated with dobutamine. The increase in liver blood flow and liver function and decrease in cytokines during and after a levosimendan infusion was confirmed recently in patients with acute or chronic heart failure. Therefore, we think an “ideal” inotropic agent should not only improve cardiac function but

also restore important organ functions like the the gut–liver axis.

References

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