

Effects of Sacubitril and Valsartan on Gut Microbiome

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Abstract : [Background] In congestive heart failure (CHF), it has always been the principle of clinical treatment to control the water retention mechanism in the body to prevent excessive fluid retention. Early control of sympathetic nerves, Renin-Angiotensin-Aldosterone system (RAA system, RAAS), or strengthening of Atrial Natriuretic Peptide (ANP) was the point. In RAA system, related hormones, such as angiotensin, or enzymes in the pathway, such as ACE-I, can be used with corresponding inhibitors to reduce water content.[Aim] In recent years, clinical studies have pointed out that if different mechanisms are combined, the control effect seems to be better. For example, recent studies showed that ENTRESTO, a combination of Sacubitril and Valsartan, is a good new drug for CHF. Sacubitril is a prodrug. After activation, it can inhibit neprilysin and act as a neprilysin inhibitor (ARNI) to reduce the breakdown of natriuretic peptides(ANP). Valsartan is a kind of angiotensin receptor blocker (ARB), both of which are used to treat heart failure at the same time, have excellent curative effects.[Materials and Methods] Considering the side effects of this drug, coughing and a few cases of diarrhea were observed. However, the effect of this drug on the patient's intestinal tract has not been confirmed. On the other hand, studies have pointed out that ANP supplement can improve the CHF and increase the inhibitory effect on cancer cells. Therefore, the purpose of this study is to use a special microbial detection method to prove that whether oral drugs have an effect on microorganisms.The experimental method uses Nissui Compact Dry to observe the situation in different types of microorganisms. After the drug is dissolved in water, it is implanted in a petri dish, and the presence of different microorganisms is detected through different antibody reactions to confirm whether the drug has some toxicology in the gut.[Results and Discussion]From the above experimental results, it can be known that among the effects of Sacubitril and Valsartan on the basic microbial flora of the human body, low doses had no significant effect on Escherichia coli or intestinal bacteria. If Sacubitril or Valsartan with a high concentration of 3mg/ml is used alone or under the stimulation of a high concentration of the two drugs, it has a significant inhibitory effect on Escherichia coli. However, in terms of the effect on intestinal bacteria, high concentration of Sacubitril has a more significant inhibitory effect on intestinal bacteria, while high concentration of Valsartan has a less significant inhibitory effect on intestinal bacteria. The inhibitory effect of the combination of the two drugs on intestinal bacteria is also less significant.[Conclusion]The results of this study can be used as a further reference for the possible side effects of the clinical use of Sacubitril and Valsartan on the intestinal tract of patients,

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