

Clinical Report 2 (Japan)

A Cases in which Goreisan was effective for Hypoalbuminemic Edema

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< Summary >

Introduction

Critical diseases are often followed by hypoalbuminemic edema. Relief of hypoalbuminemic edema is limited to western medical methods, but solutions of various associated problems like efficacy, economical problems, decrease in renal function, variations in electrolytes and the like are often difficult. Here we report our observations indicating that *goreisan* is effective for the treatment of hypoalbuminemic edema.

Patient

A 57-year old man who had been found collapsed in his home after not eating during the winter time because of economical poverty, was transported to a hospital by ambulance. Upon admission, there was cardiopulmonary arrest. There was also complicating hypothermia, so that he was connected to an artificial heart lung apparatus. Later, because of persistent low blood pressure and urine volume, large amounts of blood transfusion and fluid therapy were administered. Because a marked degree of hypoalbuminemia and edema was observed following subnutrition and critical disease, we administered *goreisan* and *juzentaihoto*, after which a swift recovery of the edema was achieved.

Discussion

Defining suitable conditions and indications for the use of *goreisan* has been difficult. An examination of the classics reveal that it is used to treat uneven distribution of water. Hypoalbuminemic edema can also be considered to be a form of even water distribution and therefore an indication for *goreisan*.

< Main text >

Introduction

Critical conditions like sepsis, multi-organ failure, major surgeries, chemotherapy etc. are often followed by hypoalbuminemic edema. Western medicine administers aldosterone antagonists, loop diuretics, or a combination of albumin preparations and loop diuretics to relieve the hypoalbuminemic edema¹⁾. Yet, some time is required until the aldosterone antagonists take effect and their effectiveness may be insufficient. Albumin preparations are associated with the risk of infection via body fluids and because of their extremely high costs, there are many obstacles regarding their use. Again, administration of diuretics decreases renal function and causes electrolyte disturbances. A major factor responsible for the difficulties relating to the treatment of hypoalbuminemic edema is, that although there is an accumulation of both fluid and saline matter, the volume within the vessels often decreases, so that administration of ordinary diuretics does not result in sufficient diuresis, but may easily lead to decreased renal function and electrolyte disturbances. Thus, we report here a case in which the Kampo medicine *goreisan* proved to be effective for the treatment of hypoalbuminemic edema.

[Chief complaint] cardiopulmonary arrest due to accidental hypothermia, subnutrition, edema

[Anamnesis]

The patient had not eaten for almost a month after he had been forced to leave his employer. On December 21st, 2004 his daughter found him collapsed in his home and had him transported to a hospital by ambulance. Upon admission there was cardiopulmonary arrest. Administration of cardiac massage, artificial ventilation management, and cardiopulmonary resuscitation. Moreover, rectal temperature was 24.5°C, indicating accidental hypothermia associated with cardiopulmonary arrest, so that he was connected to an artificial heart lung apparatus and

cardiopulmonary resuscitation performed. Later, following resuscitation he developed shock due to marked dehydration and hemorrhage from the connection sites for extracorporeal circulation, so that large amounts of transfusion fluid were administered in the form of 30 units of concentrated erythrocytes and 30 units of frozen fresh blood preparations in order to maintain blood pressure and urine volume, as well as an in-out balance + approximately 5 l/day of fluid therapy. Due to the development of pleural effusion and ascites, as well as interstitial edema associated with the subnutrition, a marked degree of hypoproteinemia developed, upon which we initiated treatment with 7.5 g/day of *goreisan* and 7.5 g/day of *juzentaihoto*.

12/24

TP: 3.7 g/dl, Alb: 2.2 g/dl, BUN: 10.4 mg/dl, Cre: 0.66 mg/dl, Na: 143 mEq/l, Cl: 109 mEq/l, K: 4.2 mEq/l, Ca: 8.4 mg/dl

Contrast CT performed on 12/24 (Picture 1) revealed bilateral pleural effusion and ascites. A plain x-ray film taken on 12/26 showed the same degree of pleural effusion (Picture 2). From 2 hours after starting the administration of *goreisan* and *juzentaihoto* a diuretic effect started to set in, leading to a urine volume of around 4 l/day and a decrease in the edema (see Figure 1). Plain x-ray films taken on December 29th showed clearly the disappearance of the pleural effusion and the edema too had almost disappeared. Simultaneously, urine volume also decreased. Since a balance had been achieved between the amount of tube feeding administered via a nasogastric tube and the urine volume, the administration of *goreisan* was discontinued. Even during the diuresis no electrolyte disturbances or anomalies of renal functions were observed. Electrolyte supplementation was performed, but a blood examination performed on 12/29 showed TP: 4.9 g/dl, Alb: 2.6, BUN: 8.8 mg/dl, Cre: 0.58 mg/dl, Na: 142 mEq/l, Cl: 105 mEq/l, K: 4.4 mEq/l, Ca: 8.1 mg/dl,

showing no signs of renal dysfunction or electrolyte anomalies.



Picture 1
Contrast CT from 12/24
Shows a large amount of bilateral pleural effusion and soft tissue edema.

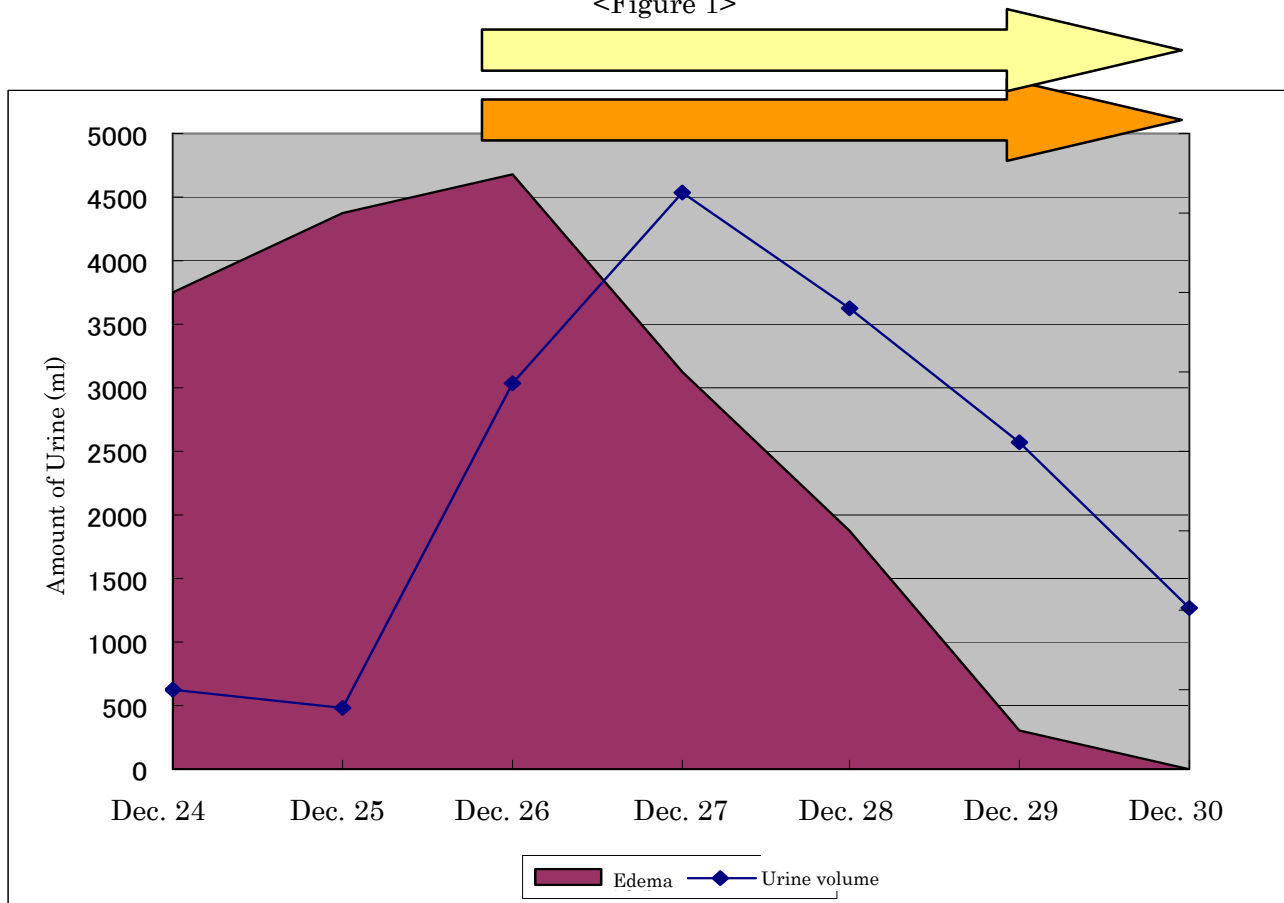


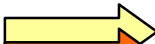

Picture 2

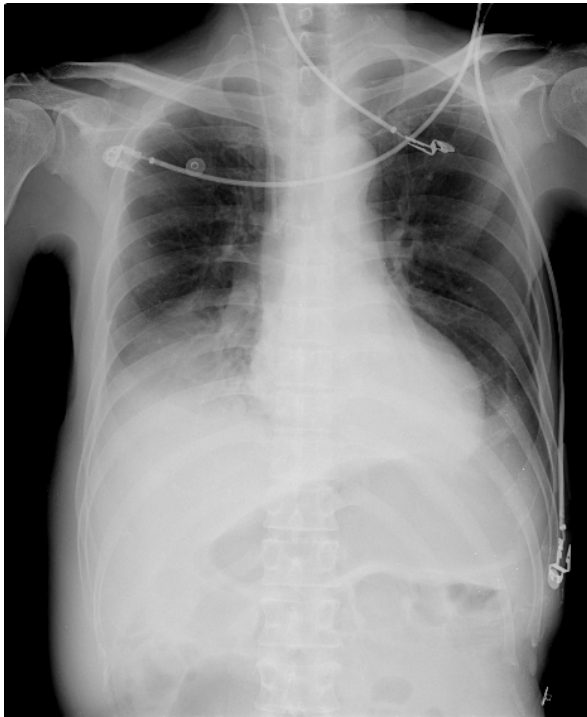
Plain chest x-ray film from 12/24
Shows a large amount of bilateral pleural effusion

Figure 1 below: Due to the rapid onset of diuresis starting 1 hour after the administration of *goreisan*, the fluid therapy was discontinued. On 12/27 the urine volume reached a peak of 4,570 ml/day, after which the urine volume gradually decreased. On 12/30 a balance with water administered with tube feeding was achieved.

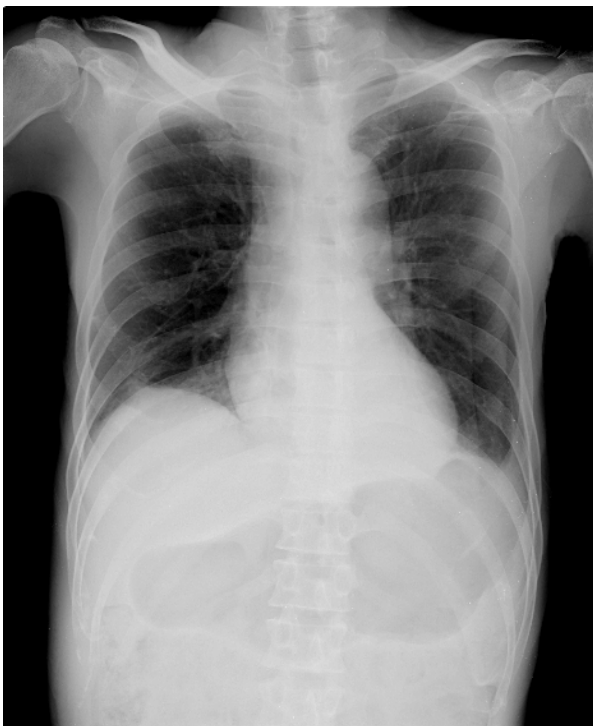
<Figure 1>



 : 7.5 g/day of *goreisan*
 : 7.5 g/day of *juzentaihoto*



Picture 4
First day of *goreisan* administered (12/26)
Bilateral pleural effusion



Picture 5
Fourth day of *goreisan* administered (12/29)
Marked improvement in the pleural effusion was observed.

Discussion

Previously, various reports have been published that dealt with the kind of symptoms and pathologies for which *goreisan* could be used. Although *goreisan* has wide actual clinical applications, the provided explanations still cannot be considered sufficient. Turning one's attention to classical references pertaining to *goreisan*, leads first to the Shang Han Lun and Jin Kui Yao Lue. Both of these classics were written in the later Han period. An examination of the historical applications reveals that the descriptions found in the Shang Han Lun, Jin Kui Yao Lue and also the [Gedai Hiyou Ho] of the Tang period are the basis. Examination of the passages referring to the indications for *goreisan* among these classics shows that cases where there is a water surplus in one area of the body and a water deficit in another part is indicative of a maldistribution of water²⁻¹⁰. In case of hypoalbuminemic edema, there is a surplus of water outside the blood vessels, but the amount in the blood vessels decreases, creating a condition that can be considered to be a form of water maldistribution. In this patient, *goreisan* was used for the purpose of treating the hypoalbuminemic edema induced maldistribution of water and produced a marked effect. This suggests, that hypoalbuminemic edema could be an indication for the use of *goreisan*. Moreover, since the treatment of hypoalbuminemic edema with western medicine has the above described disadvantages, *goreisan* could possibly become the drug of first choice.

[References]

- 1) Up to date® online 15.1 “Treatment of refractory edema”
- 2) 脉浮小便不利微熱消渴者宜利小便發汗五苓散主之(Jin Gui Yao Lue , Chapter13 Dispersion-Thist, Inhibited Urination, and Strangury)
- 3) 渴欲飲水水入則吐者名曰水逆五苓散主之 (Jin Gui Yao Lue, Chapter13 Dispersion-Thist, Inhibited Urination, and Strangury)
- 4) 太陽病發汗後大汗出胃中乾煩躁不得眠欲得飲水者少少與飲之令胃氣和則愈。若脉浮小便不利微熱消渴者五苓散主之。(Shang Han Lun, Line71 傷寒論 辨太陽病脉證并治中)
- 5) 本以下之故心下痞與瀉心湯。痞不解其人渴而口燥煩小便不利者五苓散主之。(Shang Han Lun, Line156 Early Yang stage 辨太陽病脉證并治下)
- 6) 脉浮小便不利微熱消渴者與五苓散利小便發汗 (Shang Han Lun 辨發汗後病脉證并治)
- 7) 發汗已脉浮煩渴者属五苓散證 (Shang Han Lun, Line72 辨發汗後病脉證并治)
- 8) 傷寒汗出而渴者宜五苓散。不渴者属茯苓甘草湯。(Shang Han Lun, Line73 辨發汗後病脉證并治)
- 9) 五苓散主天行熱病但狂言煩躁不安精采言語與人不相主當方。(Wai Tai Bi Yao Vol.3 外台秘要方卷三 天行狂言方)