

Effect of Preoperative “Invigorating Kidney for Reinforcing Primordial Qi” and Postoperative “Restoring Yang & Reinforcing Qi” on Stress Responses and POCD in Elderly Patients

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Introduction: Postoperative cognitive dysfunction(POCD), mainly appears in elderly patients, performing that the changes in personality and behavior after operation, and including the damages of attention, memory, ability of language understanding, information processing ability and social ability. The Western medicine considers that POCD relates to perioperative stress disorders and inflammatory cytokine mediated mechanism. However, the Chinese traditional medicine thinks that POCD concerns with Qi & blood deficiency by anesthesia and operation trauma. So this study uses “Invigorating Kidney for Reinforcing Primordial Qi” preoperative and “Restoring Yang & Reinforcing Qi” postoperative to treat Qi deficiency & Yang failure, investigating the effect of Chinese medicine on POCD through the observation of the stress response in patients and the level of inflammatory factors.

This study selected 120 cases of ASA grade II-III level in elderly patients, aged over 65, including 67 cases of male, female 53 cases, undergoing total hip replacement in 44 cases, 35 cases of knee joint surface replacement, internal fixation of femoral shaft in 24 cases, 17 cases of femoral neck fixation. The patients were randomly divided into two groups, 60 cases in each group, the treatment group (group T) injected by Shenmai Injection (Shenmai injection: *radix ginseng rubra*, *ophiopogon japonicus*) preoperative day 7 each day and by Shenfu injection (Shenfu injection: *radix ginseng rubra*, *radix aconiti lateralis preparata*) postoperative day 7 each day. The control group (group C) were not administered before and after operation. Extract arterial blood at the times of stable situation in operation room (T0), intubation (T1), 3min after intubation (T2), extubation (T3), 3min after extubation (T4) for testing cortisol (COR) and blood glucose (GLU) levels, and assessing cognitive function in patients with simple Intelligence Scale (MMSE) at the first day before operation, after operation 12, 24, 72, 96h respectively.

Results: The results show that, at the day of 1, 3, 7, 21d, the incidence rate of POCD in group T were also lower than group C at the same point time, which expresses that the incidence of POCD reduced significantly through “Invigorating Kidney for Reinforcing Primordial Qi” preoperative and “Restoring Yang & Reinforcing Qi” postoperative in elderly patients. The COR and GLU level in two groups on T1, T2, T3, T4 were higher than that of T0 ($P < 0.05$). The COR and GLU level in group C were higher than that in group T on T1, T2, T3, T4 ($P < 0.05$), which shows that it is useful to reduce the level of stress reaction by “Invigorating Kidney for Reinforcing Primordial Qi” preoperative and “Restoring Yang & Reinforcing Qi” postoperative.

The traditional Chinese medicine always thinks that, *radix ginseng rubra* reinforcing vital energy, *ophiopogon japonicus* nourishing Yin, *radix aconiti lateralis preparata* strengthening yang, expelling cold and dampness. From the Chinese

medicine theory of elderly patients with deficiency of blood and Qi, known as anesthesia and operation trauma broken Qi, blood stasis due to relatively weakening wet and weight, Phlegm dampness including anesthesia and operation stopped Qi operation and blood transfusion, blocked a deficiency of kidney qi transport imbalance. So we can conclude that firstly, the kidney Qi deficiency. Secondly, the mobilization of kidney Qi strongly and Qi loss. Thirdly, Qi deficiency and blood stasis. Therefore, in view of the above causes, the intervention of traditional Chinese medicine has a point that "invigorating Kidney for Reinforcing Primordial Qi" preoperative and "Restoring Yang & Reinforcing Qi" postoperative to treat Qi deficiency & Yang failure.

To sum up, "Invigorating Kidney for Reinforcing Primordial Qi" preoperative and "Restoring Yang & Reinforcing Qi" postoperative can obviously relieve the reaction of stress postoperative, and maybe by this mechanism to reduce the postoperative cognitive dysfunction incidence.

Keywords: POCD; stress reaction; radix ginseng rubra; Ophiopogon japonicus; radix aconiti lateralis preparata;