The Importance of Nutritional Supply in the Acute Phase of Stroke : The Cohort Study

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Introduction

- This study aimed to assess the importance of nutritional support in the acute phase of stroke.
- Many stroke patients tended to have poor nutritional status during the acute phase of stroke due to catabolic conditions caused by stroke mechanism.
- Assessing nutritional status during the acute periods after stroke was important because this related to functional recovery of patients.

Methods

- This study analysed 401 stroke patients' data of the Korean Stroke Cohort for Functioning and Rehabilitation study.
- Participants' nutritional state was assessed using the Prognostic Nutritional Index(PNI), PNI = [(10 × serum albumin (g/dL)) + (0.005 × total lymphocyte count).
- Using the fact that the half-life of albumin is approximately 20 days, nutritional status before stroke onset was measured as PNI at the time of admission, and nutritional status after one week of nutritional supply after stroke onset was measured as PNI on the 28th day of admission
- Patients were divided into three groups by PNI score at the day of admission and on the 28th day after admission. Patients with high PNI on admission and low PNI on the 28th day after admission were health nutritional group with insufficient acute nutritional supply (HNG-IANS); low PNI on admission, low PNI on the 28th day after admission were poor nutritional group with insufficient acute nutritional supply (PNG-IANS); high PNI on admission, high PIN on the 28th day after admission were health nutritional group with sufficient acute nutritional supply (HNG-SANS).
- In functional assessment, participants were first measured FAC, FIM, FMA, and mRS within 7 days after stroke onset, and follow-up measurements were recorded at 3months and 6months.
- ANOVA was performed to analyze factors of functional recovery. The 3-year mortality was estimated using the Kaplan-Meier methods.

Results

- Figure 1 is a graph of the participants' functional scores at 7 days, 3 months, and 6 months. Graph (a) shows FAC, graph (b) shows FIM, graph (c) shows FMA, and graph (d) shows mRS. The average is indicated by a dot, and the 95% confidence interval is indicated by a vertical line.
- As shown in Figure 1, the difference in result between HNG-IANS and PNG-IANS in all functional scores was not significant. HNG-SANS showed significant differences with HNG-IANS and PNG-IANS, respectively. In other words, the graph shows that HNG-SANS had better functionality than HNG-IANS and PNG-IANS.
- Figure 2 depicts Kaplan-Meier estimates of the 3-year mortality rates for three groups categorized by PNI scores. Statistically significant differences were observed in the survival rates among the groups.
- HNG-SANS (92.2%, 95% CIs 88.9%-95.7%) has the highest survival rate and HNG-IANS (74.6%, 95% CIs 67.8%-82.2%) exhibits the lowest survival rate.
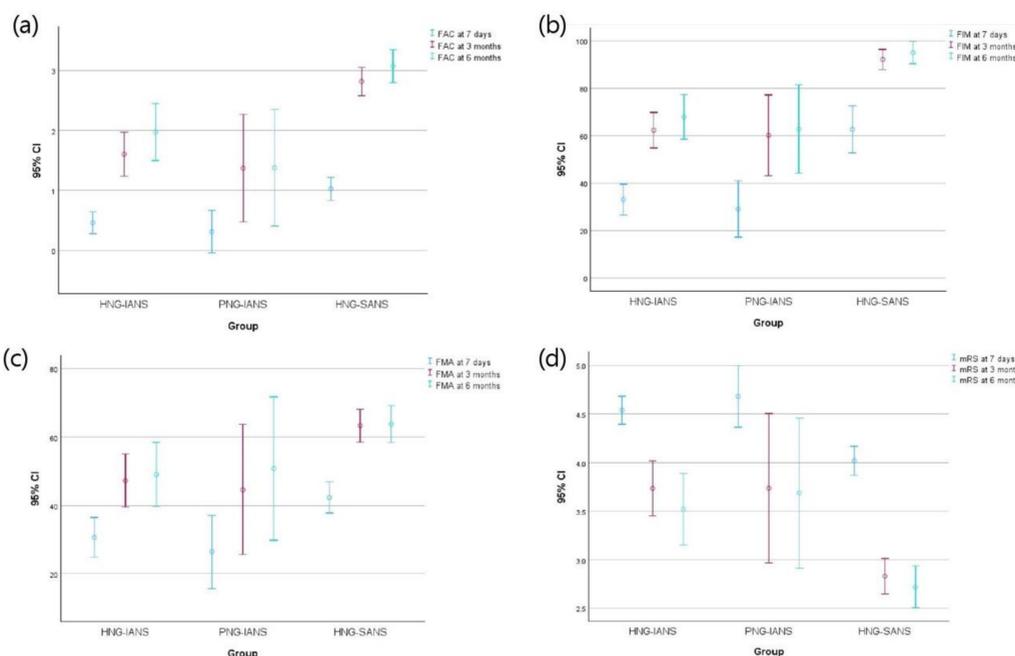

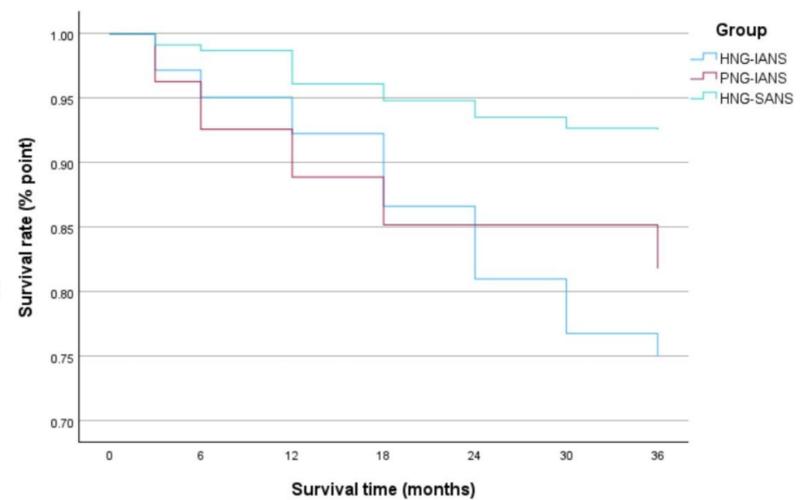Figure 1. Functional improvement graph by group.

Figure 2. Survival rates by group over time.

Conclusion

- Nutritional support in the acute phase of stroke is crucial for improving functional recovery and increasing survival rates in stroke patients.

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