

学 位 論 文 の 要 旨

氏 名 八 木 順 子

学 位 論 文 名 A PROSPECTIVE RANDOMIZED COMPARATIVE
STUDY ON THE SAFETY AND TOLERANCE OF
TRANSNASAL ESOPHAGOGASTRODUODENOSCOPY

発 表 雑 誌 名
(巻, 初頁~終頁, 年) Endoscopy (12 : 1226-1231, 2005)

著 者 名 Junko Yagi, Kyoichi Adachi, Noriyuki Arima, Shino Tanaka,
Takayuki Ose, Takane Azumi, Hiroyuki Sasaki, Masanori Sato,
Yoshikazu Kinoshita

論 文 内 容 の 要 旨

INTRODUCTION

Unsedated esophagogastroduodenoscopy (EGD) is a widely used method for detecting upper gastrointestinal disease in Japan. However, there have been numerous reports indicating that EGD causes increases of blood pressure (BP), heart rate, and hypoxia. Recently, small-caliber upper gastrointestinal endoscopes that can be inserted by the transnasal route have been developed, and these have been shown to be well suited to transnasal EGD, reducing the incidence of choking sensations and gagging episodes in patients. However, the effect of transnasal EGD on cardiopulmonary function has not been fully investigated. The aim of this prospective, randomized study was to investigate the effect of transnasal EGD on cardiopulmonary function in comparison with transoral EGD.

MATERIALS AND METHODS

The study involved 450 subjects referred for diagnostic EGD at Shimane Environment and Health Public Corporation between April and September 2004. Subjects were randomly assigned to one of three types of unsedated EGD (150 subjects per group): transnasal EGD using a small-caliber endoscope (XP-N group), transoral EGD using

the same small-caliber endoscope (XP-O group) and transoral EGD using a conventional endoscope (XQ group). The diameter of the inserted part of a small-caliber endoscope and conventional endoscope is 6.5 mm and 9.0 mm, respectively.

Systolic and diastolic BP, pulse rate (PR) and arterial oxygen saturation were monitored five times: before intubation (baseline), 2 min, 4 min and 6 min after intubation, and just after extubation (at the end of the examination). These parameters were measured and entered on a recording sheet using automatic instruments. In addition, the rate-pressure product (PR x systolic BP/100), which is reported to be a useful marker of cardiac oxygen demand, was calculated. The number of gagging episodes during EGD was recorded to determine the tolerance of subjects to the different EGD procedures. Statistical analysis was performed using the chi-squared test for comparison among groups; the Mann-Whitney U test was also applied when a significant difference was observed using the Kruskal-Wallis test. Differences at $p < 0.05$ were considered to be statistically significant.

RESULTS AND DISCUSSION

The temporal changes in cardiopulmonary parameters differed significantly among the three groups, although there was no significant difference in the baseline parameters. The systolic and diastolic BP, PR, and rate-pressure product of subjects in the XQ group were elevated just after the start of EGD and remained high during and just after the end of the procedure. The changes in these parameters from the baseline in the XQ group were significantly greater than those in the XP-N and XP-O groups. In addition, the values of these parameters in the XP-N group were significantly lower than those in the XP-O group 2 min after intubation. Arterial oxygen saturation showed a transient drop 2 min after intubation only in the XP-O and XQ groups, while no such drop was observed in the XP-N group. The difference between subjects in the XP-N and XP-O groups

just after insertion of the endoscope was considered to be due to the difference in the insertion route (transnasal vs. transoral). On the other hand, the greater cardiopulmonary changes observed in subjects of the XQ group may have been caused by the use of a larger-diameter endoscope. Therefore, the route of insertion and the diameter of the endoscope are considered to influence cardiopulmonary parameters during EGD, and the transnasal EGD using an endoscope with a smaller diameter is apparently safer than conventional EGD.

The number of gagging episodes in the XP-N group was significantly lower than that in the XP-O and XQ groups. In addition, the number of gagging episodes in the XP-O group was significantly lower than that in the XQ group. Thus, transnasal EGD is considered to be well tolerated and the diameter of the endoscope seems to influence the tolerance of patients to the procedure.

Transnasal EGD could not be performed in 12 (8.0%) of the 150 subjects in the XP-N group due to difficulties in passing the endoscope through the nasal cavity. Therefore, an endoscope with a smaller diameter is required for wider application of transnasal EGD.

CONCLUSION

Transnasal EGD is safer than transoral EGD as it is associated with fewer adverse effects on the cardiopulmonary functions and is better tolerated by patients.