

# Development and evaluation of the critical pathway for endoscopic submucosal dissection

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## Abstract and Objective

*These days, endoscopic submucosal dissection (ESD) is accepted effective alternatives to radical surgery for the treatment of UGI superficial neoplasm. The aim of this study is to determine an impact of a standardized critical pathway (CP) and an integrated education program for the early gastric cancer patients. The ESD CP was developed and implemented in Seoul National University Hospital, from June 2007 to December 2008. The CP programs included 1) standardized protocols based in EMR, 2) the integrated education programs provided by doctor, nurse, and nutritionist to the patients and their family members. We have performed ESD procedure on the very admission day in pathway group, while we implemented it on the 2nd day of stay in pre-pathway group. Our standardized critical pathways and integrated education programs for the patients who undergo ESD had an effect on reducing the length of hospitalization (from 4.2 days to 2.9 days) and the hospital cost per day (from 585 USD to 365 USD) with an improved patient's satisfaction.*

## Keywords:

Stomach neoplasm, Gastrointestinal endoscopy, Critical pathways

## Introduction

Early gastric cancer patients are increasing in Korea. With this, endoscopic instruments and skills are advancing continuously. Endoscopic submucosal dissection (ESD) is now accepted effective alternatives to radical surgery for the treatment of UGI superficial neoplasm. The aim of this study is to determine an impact of a standardized critical pathway (CP) and an integrated education program for the early gastric cancer patients.

## Methods

The ESD CP was developed and implemented in Seoul National University Hospital, from June 2007 to December 2008.

## Organization for ESD CP teams

ESD CP teams consisted of professors, doctors, and head nurses, staffs in department of internal medicine, center for endoscopy, insurance team, pharmacy, administration office,

division of quality assurance, and center for medical information.

We developed alarm systems for notice of CP patients in EMR and MIS. So we didn't inform other staffs of CP patients any longer.

## Development of ESD CP

The CP programs included 1) standardized protocols based in EMR, 2) the integrated education programs provided by doctor, nurse, and nutritionist to the patients and their family members.

Standardized protocols based in EMR consist of 3 structures; Set registration program, user program for doctor and user program for nurse.

1) The Set registration program registers the following items in advance; goal, monitoring, treatment, medication, activity, diet, test, consultation, education, evaluation, medical/nursing record checklist and permission.

2) The User program for doctors/nurses is in real time. It is comprised in patient information and has same items as the set registration program.

We have performed ESD procedure on the very admission day in pathway group, while we implemented it on the 2<sup>nd</sup> day of stay in pre-pathway group.

## Results

In ESD CP, the average length of hospitalization decreased in the pathway group (2.9 days) compared with the pre-pathway group (4.2 days). The average hospital cost per day was higher in the pathway group (585 USD) than that in the pre-pathway group (365 USD).

The numbers of applied patients from June 2007 to December 2008 were 401 and 200 were excluded or dropped. The applied rate was 66.7% and the drop rate was 33.3%.

The patients who need ESD and were not diagnosed with advanced gastric cancer were enrolled ESD CP. The patients who need to take additional endoscopic treatments or who experienced UGI bleeding or perforation were excluded.

## **Conclusions**

Our standardized critical pathways and integrated education programs for the patients who undergo ESD had an effect on reducing the length of hospitalization and increasing the hospital cost per day with an improved patient's satisfaction.