IS-003
Oxidative DNA Damage and Antioxidant Enzyme Activity in Rat Liver Cells

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Purpose: Previous studies have suggested that oxygen (O2) therapy in the postnatal period may be causally related to the development of hepatoblastoma (HB) in low birth-weight children. To verify the possible role of O2 radicals in carcinogenesis of liver cells in premature babies, we examined O2-causing oxidative DNA damage and an antioxidant enzyme activity in primary cultures of rat liver cells. Methods: Liver cells of Wistar rats (newborn, 5 to 7 weeks and 6 to 7 months) were primarily cultured. After an exposure to 95% O2 or ultraviolet (UV), the levels of 8-hydroxy-2'-deoxyguanosine (8-OHdG) in medium were measured. The activity of superoxide dismutase (SOD) in liver cells was measured and was compared to that of cells of other organs. Results: After O2 exposure, 8-OHdG accumulated in medium in a time-dependent manner. The concentration of 8-OHdG after overnight O2 exposure was significantly higher than that after UV exposure or in the control (p<0.01). SOD activity was significantly lower in liver cells of newborn rats. Conclusion: These findings support the hypothesis that relatively low antioxidant enzyme activity and oxidative DNA damage caused by O2 may play an important role in the development of HB in the livers of children with low birth-weights.

IS-004
Esophageal Substitution with Interposed Intestinal Segment

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Long-gap esophageal atresia and long circumferential esophageal stricture after ingestion of concentrated acid or alkali or reflux esophagitis are indications for esophageal substitution. The most common method of esophageal substitution in children is colon interposition and total gastric transposition. The goal of this study is to present our experience of esophageal substitution with interposed segment of intestine.
During the last 5-year period 29 children from 9-months to 15-years underwent esophageal substitution with intestinal segment. The diagnosis was: long gap atresia 20, chemical burn 7, GER and Barrett esophagitis 2. 11 patients previously underwent unsuccessful attempt of esophageal reconstruction (total gastric transposition, gastric tube esophagoplasty, Collis-Henderson gastroplasty, Kimura’s procedure). Esophageal substitution was performed using: colon 10 patients, jejunum 9, colon with jejunal implant 10, in posterior mediastinum 10. The most frequent early complication was salivary fistula from the upper anastomosis. Two patients developed total necrosis of interposed colon. Upper anastomosis stricture was the most common late complication along with ulceration at the site of lower anastomosis, which was diagnosed solely after colonic interposition. One patient died a year after surgery due to the reason not related to esophageal substitution. The follow up is from 6 months to 5 years. All but one patient, who is waiting for the next step of epiglottis reconstruction, are on the normal oral diet.
Conclusions: Interposition of intestine segment is an effective method of esophageal substitution. Better results could be expected after jejunum interposition.