



ARCHIVES OF THE HUNGARIAN MEDICAL ASSOCIATION OF AMERICA

The official publication of the Hungarian Medical Association of America, Inc.



accepted; some has taken a longer learning curve and acceptance (gastric bypass, colectomy). In recent years new forms of minimally invasive surgery have been introduced. In this paper we will review these advances. Natural orifice and single port surgery has been introduced about 7 years ago. Natural orifice surgery is still in experimental phase and only performed in a few selected centers. It involves entering the abdominal cavity through a natural orifice: via the mouth and stomach; via the rectum; or the vagina. Various surgical procedures (cholecystectomy, appendectomy, and nephrectomy) can be performed with a scarless procedure. Potential severe complications (leak at the entry site) and lack of proper instrumentation are hindering acceptance of this technique. Single site access surgery, on the other hand, is becoming more and more used for various procedures. It has the advantage of reduced scarring by entering the abdomen at the umbilicus. All the instrumentation and the camera are introduced through a special port. The development of these special ports and instruments are facilitating the acceptance of these procedures. Long term studies are not available yet to demonstrate significant benefits of these procedures to conventional laparoscopy. Robotic assisted surgery continues to evolve in general surgery, especially in complex procedures, where the main advantages (stable camera platform, articulating instruments, 3-D imaging and ergonomically correct position of the surgeon) are important. Robotic assisted single port surgery has been introduced about 2 years ago, with promising early results. Endoluminal surgery and intraoperative real time imaging are currently introduced, and will be available in the near future.

Keywords: laparoscopic surgery, robotic surgery, minimally invasive surgery, single port surgery, natural orifice surgery

**F/2 SURGICAL MYOCARDIUM
REVASCLARIZATION FOLLOWING
PERCUTANEOUS CORONARY INTERVENTION IN
THE DEPARTEMENT OF CARDIAC SURGERY
UNIVERSITY OF DEBRECEN BETWEEN 2007-2012
Péter Csizmadia, Tamas Debreceeni, Tamas Szerafin**

**Department of Cardiac Surgery, Institute of
Cardiology, University of Debrecen**

Background: Percutaneous coronary intervention (PCI) is the most common treatment for revascularization of ischaemic myocardium. Following successful PCI 15-30% of patients require repeated coronary intervention. **Objective:** This study examines the outcome, morbidity and mortality of cardiac surgery following percutaneous coronary intervention. **Patients and methods:** Between 1. January 2007. and 31. December 2012. 592 patients underwent isolated CABG after PCI in our department. 146 women and 446 men with the mean age of $60,6 \pm 9$ at the time of surgery. **Results:** More often restenosis developed after initially successful PCI or progression of the coronary artery disease, less cases PCI failure and unsuccessful intervention were the indication for CABG. At the first procedure the patients who had 1 or 2 vessel disease, by the time of the surgery mostly 3 vessel disease was developed. Therefore the mean number of the distal anastomoses was higher. **Conclusion:** Based on our results an increasing number of patients PCI procedures have been performed before they are referred to CABG. The interval between PCI and surgical myocardium revascularization, moreover the high rate of patients with multivessel disease emphasise the importance of proper patient selection before PCI.

Keywords: coronary intervention, revascularization, myocardium, surgical

**F/3 MORPHOLOGICAL AND FUNCTIONAL
CHANGES DURING TRIGGERED LIVER
REGENERATION**

**András Budai, Diana Korsos¹, Damjan Pekli¹,
Andras Fulop¹, Gabor Lotz², Laszlo Harsanyi¹,
Attila Szijarto¹**

**¹1st Department of Surgery, Semmelweis
University**

**²2nd Department of Pathology, Semmelweis
university**

Introduction: Selective portal vein ligation (PVL) results of ipsilateral atrophy and hypertrophy of contralateral liver segments. The aim of the present study was to examine the morphological

and functional changes during this process. Methods: Male Wistar rats (n=70) underwent PVL. The portal venous supply of the 80% of whole parenchyma was ligated (lobes III-VII). The animals were sacrificed 0, 12 hours, 1, 2, 3, 5, 7 days after PVL. Histological examination (necrosis, apoptosis, mitosis, glycogen content) was performed. Wet-to-dry and liver regeneration ratio were calculated. Bile secretion was performed by selective bile cannulation before and 7 days after PVL. Results: Liver regeneration rate was 7 days after PVL 266,2% in lobes I-II and 18,8% in lobes III-VII. The division of cells in regenerated lobes were found significantly higher 1 day after PVL (54.6 vs. 0.2) and reached maximum by 48 hours (56.3 vs 0.2). Apoptosis scores were the highest in the portal vein ligated lobes 2 days after PVL (43.6 vs. 0). Necrosis scores were the highest in the portal vein ligated lobes 1 day after PVL. Oedema content of both the regenerated and portal vein ligated lobes increased moderately. During selective-bile-duct cannulation, bile-flow in contrast to the control increased in regenerated lobes (30,3% vs. 71,6%) and decreased in portal vein ligated lobes (69,6% vs. 28,8%). Conclusions: According to our data it can be suggested that PVL induced liver regeneration causes not only weight increase, but functional recovery as well.

Keywords: portal vein, ligation, liver regeneration, bile secretion, morphology

F/4 INTERACTION OF POSTCONDITIONING AND TOLL-LIKE RECEPTORS IN MESENTERIC ISCHEMIA-REPERFUSION

Tibor Kovács, Oliver Rosero¹, Peter Onody¹, Peter Palla¹, Gabor Lotz², Laszlo Harsanyi¹, Attila Szijarto¹

¹1st Department of Surgery, Semmelweis University

²2nd Department of Pathology, Semmelweis University

Background. Ischemic-reperfusion (I-R) injury of the small intestine occurs most frequently following superior mesenteric artery (SMA) occlusion. Applied at the onset of reperfusion, postconditioning - brief, repetitive, alternating cycles of reperfusion- and reocclusion, prior to

the vessel's free reperfusion -, seems as a suitable method for attenuating tissue damage. As part of the innate immune system, toll-like receptors (TLRs) play an important role in the pathogenesis of I-R injury. The aim of the study was to examine the effects of postconditioning on local TLR expression-, and on local redox- and systemic inflammatory states. Methods. Male Wistar rats underwent 60 minutes of SMA clamping, and 360 minutes of reperfusion. The animals were randomized into 3 groups: SHAM-operated, I-R control (IR), and Postconditioned (PC). Postconditioning was performed in 6 cycles of 10-10 seconds of reperfusion and reocclusion each. Following the end of reperfusion, blood and tissue samples were taken for further histological analysis, and measurement of local TLR mRNA expression. Furthermore, an intestinal mucosal section was homogenized for the assessment of local redox state. Serum TNF- α and IL-6 levels were also measured. Results. Compared to the I-R control group, the postconditioned group presented milder tissue injury, increased TLR mRNA expression ($p<0,05$), and lower TNF- α ($p=0,002$)- and IL-6 ($p=0,004$) serum concentrations. Paralelly, postconditioning amended the mucosal redox state by increasing the number of -SH agents (I-RDuodenum: $1,41\pm0,24$ mmol/l; I-RJejunum: $1,44\pm0,2$ mmol/l; I-RIleum: $1,31\pm0,31$ mmol/l; PCD: $1,88\pm0,13$ mmol/l; PCJ: $2,04\pm0,47$ mmol/l; PCI: $1,65\pm0,18$ mmol/l), and H⁺-donor activity (I-RD: $76\pm13\%$; I-RJ: $71\pm9\%$; I-RI: $56\pm22\%$; PCD: $93\pm6\%$; PCJ: $83\pm15\%$; PCI: $69\pm10\%$). The total mucosal reducing power was also enhanced (I-RD: 256 ± 52 AS/g; I-RJ: 233 ± 33 AS/g; I-RI: 231 ± 46 AS/g; PCD: 304 ± 66 AS/g; PCJ: 324 ± 65 AS/g; PCI: 294 ± 41 AS/g). Conclusions. Postconditioning proved capable of modulating intestinal mucosal TLR mRNA expression, and attenuating intestinal I-R injury following SMA occlusion.

Keywords: small intestine, ischemia-reperfusion, postconditioning, toll-like receptors, arteria mesenterica superior

F/5 MEDICAL CHALLENGES OF HEALING TUMORS OF HORSESHOE KIDNEY

Gábor Rosta¹, J Bakai², Z Garami³, K G Rosta⁴

¹University of Szeged