EAES CONSENSUS CONFERENCE

SINGLE INCISION ENDOSCOPIC SURGERY (SIES)

STATEMENTS AND RECOMMENDATIONS

EAES appreciates your input! Please give your opinion on the below statements and recommendations of the SIES consensus conference EAES Frankfurt 2017 via: congress@eaes.eu

1.- GENERAL TOPIC

1.A.- INSTRUMENTS

Statements

1) A combination of straight and curved, or straight and articulating instruments may result in improved skills acquisition in single incision endoscopic surgery. (LoE4)

2) A combination of two straight instruments, or a combination of two curved or articulating instruments may be associated with worse task performance. (LoE4)

Recommendations

1) The use of a combination of one straight and one curved or articulating instrument could be suggested during the learning curve of single incision endoscopic surgery.

Grade of recommendation: Weak

1.B.- DEVICES

Statements

1) Reusable metal access devices for single incision endoscopic surgery available nowadays may be associated with longer suturing task completion time compared to specific disposable devices. (LoE3)

Recommendations

1) For the selection of access devices in single incision endoscopic surgery one should consider associated costs, taking into account that specific reusable metal devices available nowadays may be associated with longer task completion.

Grade of recommendation: Weak

1,C.- ERGONOMICS

Statements

1) SIES might be associated with a more neutral posture of the surgeon's head and higher workload than conventional laparoscopic approach during video-assisted thoracic surgery. (LoE4)

2) Based on bench tests, SIES might be associated with a higher surgeon's muscle activity and wrist's radial/ulnar range of motion than conventional laparoscopic approach. (LoE5)

3) Based on bench tests, articulating instruments might be associated with higher surgeon's workload, muscle activity and wrist's radial/ulnar range of motion than straight laparoscopic instruments during SIES. (LoE5)

Recommendations

No Recommendation

2.- ORGAN SPECIFIC

2.A.-CHOLECYSTECTOMY

Statements

In selected patients (elective cholecystectomy in patients with BMI < 35):

1) SIES cholecystectomy is associated with better cosmesis, lower postoperative pain, and longer operative time in comparison with 4 port LC. (LoE1)

2) In SIES cholecystectomy length of hospital stay and quality of life is comparable to 4 port LC. (LoE1)

3) No statement can be made on risk of port site hernia due to short follow-up.

4) No statement can be made regarding the difference in occurrence of common bile duct lesions since overall incidence of common bile duct lesions is very low.

Recommendations

1) In selected patients (elective cholecystectomy in patients with BMI < 35) SIES cholecystectomy is feasible and seems safe compared to 4 port laparoscopic cholecystectomy.

Grade of recommendation: Weak

2) SIES cholecystectomy must be performed if patient is looking for better cosmesis and less pain compared to conventional 4 port cholecystectomy.

Grade of recommendation: Weak

2.B.- APPENDECTOMY

Statements

In non-perforated appendicitis:

1) SIES appendectomy is associated with better cosmetic outcomes, shorter hospital stay, and earlier return to work compared to standard LA. (LoE1)

2) SIES appendectomy is associated with comparable outcomes as standard LA with regard to operating time and postoperative pain. (LoE1)

3) No statement can be made on the risk of port site hernia after SIES due to short follow up and low incidence of the hernia. (LoE1)

Recommendations

1) SIES appendectomy in non-perforated appendicitis is feasible and seems safe compared to standard LA.

Grade of recommendation: Weak

2) SIES appendectomy in non-perforated appendicitis must be performed if patient is looking for better cosmesis and earlier return to work.

Grade of recommendation: Weak

2.C.- COLON

Statements

In selected patients (excluding T4 or tumors > 5 cm, BMI > 35, previous abdominal surgery), single port colonic surgery:

1) - might be a feasible approach. (LoE2)

2) - might be associated with same oncological surrogate outcome than multiport surgery, but long-term data on oncological outcomes are lacking. (LoE2)

3) - might have comparable perioperative outcomes than multiport surgery regarding morbidity and complication rate. (LoE2)

4) - might be associated with shorter hospital stay and less postoperative pain than multiport surgery. (LoE3)

5) On selected patients (excluding T4 or tumors > 5 cm, BMI > 35, previous abdominal surgery), single port right colectomy might be a safe and feasible "starting point" for colorectal surgeons first approaching SIES. (LoE3)

Recommendations

1) In selected patients (excluding T4, tumors > 5 cm, BMI > 35, previous abdominal surgery) SIES colonic resection should be equally safe and effective compared to multiport colonic surgery with comparable histological surrogate outcome.

Grade of recommendation: Strong

2) In selected patients (excluding T4, tumors > 5 cm, BMI > 35, previous abdominal surgery) SIES colonic resection should be performed if patient is looking for better cosmesis and shorter hospital stay.

Grade of recommendation: Weak

2.D.- RECTUM

Statements

In selected patients (tumor < 4 cm and BMI < 30) SI rectum resection in comparison to laparoscopic rectum resection:

1) - if carried out by experienced surgeons patients might be treated by SIES safely and with comparable outcome. (LoE2)

2) - postoperative hospital stay might be shorter in the SIES group. (LoE3)

3) - postoperative pain might be lower in the SIES group. (LoE2)

4) - the histological surrogate outcome for malignant indications might be comparable in both groups. (LoE2)

5) - costs might be comparable in both groups. (LoE3)

6) No statements on cosmesis and hernia occurrence can be made with the available data.

Recommendations

1) Single incision endoscopic rectal surgery in selected patients (tumor size <4 cm and BMI < 30) should be performed by experienced laparoscopic surgeons safely with less postoperative pain and comparable histological surrogate outcome compared to laparoscopic rectum resection.

Grade of recommendation: Weak

2.E.- BARIATRIC SURGERY

Statements

1) In selected patients (BMI<50, no previous surgery and xipho-umbilical distance less than 25 cm) and performed by skilled surgeons, single incision laparoscopic bariatric surgery might be as safe as the conventional laparoscopic approach, with comparable weight loss results in the short term follow up. (LoE3)

2) Single incision laparoscopic sleeve gastrectomy, compared to the conventional laparoscopic procedure, might be associated with less postoperative pain and a better cosmetic result, but with an increase in operative time. (LoE2)

3) Single incision laparoscopic gastric bypass, compared to the conventional procedure, might be associated with less postoperative pain and a better cosmetic result, but with an increase in operative time. (LoE3)

Recommendations

1) In a controlled environment of expert bariatric surgeons, single incision laparoscopic bariatric surgery (sleeve gastrectomy and gastric by-pass) should be performed safely in selected patients (BMI<50, no previous surgery and xipho-umbilical distance less than 25 cm), especially in those concerned with cosmetic results.

Grade of recommendation: Weak

2.F.i.- SPLENECTOMY

Statements

1) Single incision endoscopic splenectomy (estimated spleen weight ≤ 500g) might be considered a safe and feasible surgical approach with perioperative morbidity and length of hospital stay comparable with standard laparoscopic splenectomy. (LoE4)

2) Single incision endoscopic splenectomy might be considered superior to standard laparoscopic splenectomy in terms of cosmesis in selected patients. (LoE4)

3) Single incision endoscopic splenectomy might be considered to have longer operative time compared to laparoscopic splenectomy . (LoE4)

4) No conclusions can be drawn about incisional hernia due to the lack of follow-up. (LoE5)

5) No conclusions can be drawn about the costs of the procedure. (LoE5)

Recommendations

No recommendation

2.F.ii.- ADRENALECTOMY

Statements

1) Single incision endoscopic left transabdominal adrenalectomy might be considered a feasible surgical approach in the treatment of functional and non-functional adrenal masses. (LoE4)

2) SIE transabdominal left adrenalectomy might be considered similar to laparoscopic left adrenalectomy in terms of perioperative morbidity, length of hospital stay, duration of operation, conversion to open surgey, time to oral intake after surgery and postoperative pain. (LoE4)

3) In some cases of SIE transabdominal left adrenalectomy additional trocars might be required to complete the procedure. (LoE4)

4) No conclusions can be drawn about incisional hernia due to the lack of follow-up. (LoE5)

5) No conclusions can be drawn about the costs of the procedure. (LoE5)

Recommendations

No recommendation

2.G.i.- LIVER

Statements

1) Selected patients might be treated safely and with comparable outcome to LS by SIES liver resection if carried out by both, experienced liver and SIES surgeons. (LoE2 downgraded to LoE3)

2) Due to a high heterogeneity of the operative procedures a clear statement on operating time is not possible. However, available data does not show a significant difference in operating time between LS an SIES. (LoE2 downgraded to LoE3)

3) Available data indicates a shorter postoperative hospital stay in the SIES group. (LoE2 downgraded to LoE3)

4) No statements on cosmesis, hernia occurrence, postoperative pain and costs can be made with the available data.

Recommendations

1) SIES liver resections in minor procedures should be performed safe and effective by experienced surgeons compared to conventional laparoscopic approach.

Grade of recommendation: Weak

2.G.ii.- PANCREAS

Statements

1) Selected patients (distal pancreatic resections) might be treated safe by SIES and with comparable outcome as in laparoscopic pancreatic distal resections if carried out by both, experienced pancreas and SIES surgeons. (LoE3)

2) Available data indicates a shorter postoperative hospital stay in the laparoscopic group. (LoE3)

3) Operating time might be longer in SIES compared to laparoscopic pancreas resections. (LoE3)

4) No statements on cosmesis, hernia occurrence, postoperative pain and costs can be made with the available data.

Recommendations

1) SIES distal pancreatic resections should be performed equally safe and effective by experienced surgeons as conventional laparoscopic approach.

Grade of recommendation: Weak

2.H.- UPPER GI BENIGN

Statements

SIES Nissen fundoplication in selected patients (ASA 1 and 2):

1) - might be considered a safe and effective procedure in short term basis. (LoE3)

2) - might have better cosmetic results compared to standard LS fundoplication. (LoE3)

3) - might be associated with longer operative time compared to standard LS fundoplication. (LoE3)

4) - might result in comparable hospital stay, compared to standard LS fundoplication. (LoE3)

5) No conclusions can be drawn with regards to postoperative pain and trocar hernia of SIES fundoplication. (LoE3)

Recommendations

1) SIES antireflux surgery (Nissen fundoplication) should be performed safely in selected patients (ASA 1 or 2) by experienced surgeons.

Grade of recommendation: Weak

2.I.- UPPER GI MALIGNANT – GASTRIC CANCER

Statements

SIES gastrectomy in early distal gastric cancer (stage Ia/Ib) in patients with BMI<25:

1) - might be as safe as conventional laparoscopic approach in terms of postoperative complications (LoE4)

2) - might present a longer operative time but seems to present less blood loss and a shorter hospital stay than laparoscopic approach (LoE4)

3) seems to have similar oncological surrogate outcomes than the conventional approach (LoE4)

Recommendations

1) In expert hands SIES gastrectomy for early distal gastric cancer in patients with BMI<25 could be feasible and safe, with similar morbidity than conventional laparoscopic approach.

Grade of recommendation: Weak

2.J.i.- ABDOMINAL WALL – INGUINAL HERNIA

Statements

1) Single incision endoscopic inguinal hernia repair (SIEIHR) is feasible in experienced hands. (LoE1)

2) SIEIHR safety seems comparable to other inguinal repair procedures. (LoE1)

3) SIEIHR might require operative time longer by about 20%. (LoE2)

4) SIEIHR post-operative pain might be comparable to conventional laparoscopy hernioplasty (CLH). (LoE3)

5) SIEIHR might lead up to a smaller scar length but comparable patient satisfaction score to CLH. (LoE3)

6) The recurrence rate might be comparable between CIH and SILH. (LoE4)

7) SIEIHR procedure might have higher costs. (LoE4)

Recommendations

1) In experienced hands SIES Inguinal Hernia Repair (TEP) must be feasible and seems as safe as conventional laparoscopic inguinal repair.

Grade of recommendation: Weak

2.J.ii.- ABDOMINAL WALL – VENTRAL HERNIA

Statements

1) Single incision endoscopic ventral hernia repair (SIEVHR) might be feasible in different clinical scenarios (obesity, large hernia, recurrent hernia). (LoE3)

2) SIEVHR safety might be comparable to laparoscopic ventral hernia repair (LVHR). (LoE3)

3) Operative time in SIEVHR might be comparable to LVHR. (LoE3)

4) SIEVHR might lead up to a smaller scar length than LVHR. (LoE3)?

5) Overall recurrence rate after SIEVHR might be comparable to LVHR. (LoE3)?

6) No comparison of costs between SIEVHR and LVHR is possible with the given evidence. Some reports describe SIEVHR with standard laparoscopic equipment. (LoE4)

Recommendations

1) In experienced hands SIES ventral hernia repair should be safe and feasible compared to conventional laparoscopic approach.

Grade of recommendation: Weak

3.- NEW DEVELOPMENT

3.-A.- INTRAGASTRIC SURGERY

Statements

1) SIES intragastric surgery might be feasible in the resection of those submucosal stromal tumours placed in difficult locations (ie: near esophagogastric junction, prepyloric) (LoE5)

Recommendations

No Recommendation

3.B.- SINGLE PORT THROUGH NATURAL ORIFICE

Statements

Natural Orifice (hybrid) Transvaginal Elective Cholecystectomy

1) - might be a safe and feasible procedure in selected patients. (LoE:2)

2) – might have the potentials to represent a further advantage in terms of cosmesis and pain perception, compared to standard laparoscopy. (LoE: 2)

3) No statement can be made on the use of other Natural orifice techniques concerning safety and feasibility. (LoE: 4)

Recommendations

1) NOTES SIES for transvaginal elective cholecystectomy should be safe and feasible compared to conventional laparoscopic approach being associated to less pain perception and better cosmesis.

Grade of recommendation: Weak

3.C.- SINGLE PORT AND ROBOTICS

Statements

Single incision robotic cholecystectomy:

1) - might be safe and effective. (LoE2)

2) - might have an advantage in terms of cosmesis but not in terms of pain perception, compared to standard laparoscopy. (LoE2)

3) - might increase the morbidity of the surgical wound compared to standard laparoscopy. (LoE3)

Recommendations

1) Robotic SIES with the Si DaVinci system should be safe and feasible for cholecystectomies, although it should be associated to higher rate of morbidity at the surgical wound.

Grade of recommendation: Weak

2) No Recommendation can be given with new robotic systems (Xi DaVinci, etc…)

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