**Table I: Relationship between clinical parameters and prevalence of SSI.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| **Parameter** | **SSI Present**  **Frequency (%)** | **SSI Absent**  **Frequency (%)** | **Total** | **X2** | **df** | **P value** |
|  |  |  |  |  |  |  |
| **Age**  < 20  21-30  31-40  41-50  51-60  61-70  71-80  **Sex**  Male  Female  **Type of surgery**  Elective  Emergency  **ASA status of patients**  I  II  III  IV  V  **Class of wounds**  Clean  Clean contaminated  Contaminated  Dirty  **Duration of surgery**  < 1 hour  1-2 hours  2-3 hours  **Cadre of surgeon**  Registrar  Senior Registrar  Consultant  **Co-morbid factors**  Diabetes  Anaemia  Smoking  RVD  Obesity  CLD | 6 (25.0)  27 (43.6)  22 (43.1)  16 (41.0)  9 (31.0)  3 (20.0)  2 (66.7)  59 (37.6)  26 (39.4)  17 (25.4)  68 (43.6)  4 (14.8)  9 (12.2)  49 (51.6)  21 (91.3)  2 (50.0)  3 (13.6)  12 (27.3)  37 (35.6)  41 (77.4)  2 (10.0)  47 (33.3)  36 (59.0)  11(64.7)  66 (39.5)  8 (20.5)  1(16.7)  17 (38.6)  15 (48.4)  11 (68.8)  27 (100.0)  3 (60.0) | 18 (75.0)  35 (56.4)  29 (56.9)  23 (58.9)  20 (69.0)  12 (80.0)  1 (33.3)  98 (62.4)  40 (60.6)  48 (71.6)  90 (57.7)  23 (85.2)  65 (87.8)  46 (48.4)  2 (8.7)  2 (50.0)  19 (86.4)  32 (72.7)  67 (64.4)  12 (22.6)  18 (90.0)  94 (66.7)  25 (41.0)  6 (35.3)  101 (60.5)  31 (79.5)  5 (83.3)  27 (61.4)  16 (51.6)  5 (31.2)  0 (0.0)  2 (40.0) | 24 (100.0)  62 (100.0)  51 (100.0)  39 (100.0)  29 (100.0)  15 (100.0  3 (100.0)  157 (100.0)  66 (100.00  67 (100.0)  156 (100.0)  27 (100.0)  74 (100.0)  95 (100.0)  23 (100.0)  4 (100.0)  22 (100.0)  44 (100.0)  104 (100.0)  53 (100.0)  20 (100.0)  141 (100.0)  61 (100.0)  17 (100.0)  167 (100.0)  39 (100.0)  6 (100.0)  44 (100.0)  31 (100.0)  16 (100.0)  27 (100.0)  5 (100.0) | 6.346  0.065  3.867  62.472  56.190  19.331  10.359  9.274 | 5  1  1  4  3  2  2  6 | 0.274  0.799  0.049  < 0.001  < 0.001  < 0.001  0.006  0.099 |

Key: CLD-chronic liver disease, RVD-retroviral disease

## Table II: Indications for emergency laparotomy and attendant SSI rates in 156 patients

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indication** | **Procedure done** | **Number** | **SSI Present**  **n (%) Cum (%)** | |
| **Intestinal obstruction (without peritonitis)**  1. Colonic tumour  2. Rectal tumours  3. Gangrenous sigmoid volvulus  4. Obstructed sigmoid volvulus  5. Adhesive intestinal obstruction  **Sub-total** | Biopsy +colostomy  Resection + end-to-end anastomosis  Biopsy + colostomy  Resection + colostomy  Resection + anastomosis  Adhesiolysis  Adhesiolysis + resection + anastomosis | 9  8  11  6  5    8  4  **51** | 1 (1.9)  3 (5.9)  2 (3.9)  5 (9.8)  3 (5.9)  1(1.9)  2 (3.9)  **17 (33.3)** | 1.4  4.4  2.9  7.4  4.4  1.4  2.9  **(25.0)** |
| **Oesophageal pathologies**  1. Corrosive oesophageal stricture  2. Oesophageal carcinoma  **Sub-total** | Feeding Gastrostomy  Feeding Gastrostomy | 2  4  **6** | 1 (16.67)  1 (16.67)  **2 (33.33)** | 1.4  1.4  **(2.9)** |
| **Peritonitis**  1. Typhoid ileal perforation  2. Duodenal (peptic) ulcer perforation  3. Gastric (peptic) ulcer perforation  4. Small bowel perforation (Blunt abdominal injury)  **Sub-total** | Right hemicolectomy + ileo-transverse anastomosis  Segmental resection + ileo-ileal anastomosis  Simple closure  Closure of perforation + omental patch  Biopsy + closure of perforation + omental patch  Closure of perforations | 9  10  4  11  10  9  **53** | 7 (13.2)  10 (18.9)  2 (3.8)  7 (13.2)  4 (7.6)  4 (7.6)  **34 (64.2)** | 10.3  14.7  2.9  10.3  5.9  5.9  **(50.0)** |
| **Penetrating Abdominal injuries**  1. Traumatic gastric perforation  2. Traumatic small bowel perforations  3. Left colonic perforation + splenic injury  4. Left colonic perforation  5. Transverse colon perforation  6. Liver laceration + splenic laceration  **Sub-total** | Closure of perforation  Resection + anastomosis  Colostomy + splenectomy  Colostomy  Colostomy  Suturing + Splenectomy | 6  4  9  6  3  3  **31** | 1 (3.2)  1 (3.2)  4 (13.0)  3 (9.7)  1 (3.2)  0 (0.0)  **10 (32.3)** | 1.4  1.4  5.9  4.4  1.4 0.0  **(14.7)** |
| **Blunt abdominal injuries**  1. Small bowel contusions + mesenteric contusion  2. Isolated liver laceration  **Sub-total** | Resection + anastomosis  Omental patch | 5  2  **7** | 0 (0.0)  0 (0.0)  **0** | 0 (0.0)  0 (0.0)  **0** |
| **Enterocutaneous fistula (High output)**  [Ileal =6, Jejunal=2]  **Sub-total** | Right hemicolectomy + ileo transverse anastomosis  Resection + jejuno-jejunal anastomosis | 6  2  **8** | 4 (50.0)  1 (12.5)  **5 (62.5)** | 5.9  1.5  **(7.4)** |

|  |
| --- |
| Key: Cum (%)-cumulative number and percentage with respect to total patients in the study group. |

**Table III: Indications and occurrence of surgical site infection in elective laparotomies.**

|  |
| --- |
|  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indication** | **Procedure done** | **Number** | **SSI present** | |
| **n (%)** | **Cum %** |
|  |  |  |  |  |
| **Oesophageal tumour**  **Sub-total** | Gastrostomy | 4  **4** | 1(5.88)  **1 (25.0)** | 5.9  **5.9** |
| **Gastro-intestinal pathologies**  1. Gastric tumours  2. Colonic tumours  3. Recto-anal tumours  **Sub-total** | Gastro-jejunostomy  Resection + anastomosis  Biopsy + colostomy  Biopsy + colostomy | 9  12  4  5  **30** | 1 (5.88)  2 (11.76)  1 (5.88)  1 (5.88)  **5 (16.67)** | 5.9  11.76  5.9  5.9  **35.4** |
| **Hepato-biliary pathologies**  1. Obstructive jaundice  2. Calculous cholecystitis  **Sub-total** | Double by-pass  Triple by-pass  Cholecystectomy | 4  9  16  **29** | 1 (5.88)  2 (11.76)  2 (11.76)  **5 (17.24)** | 5.9  11.76  11.76  **29.4** |
| **Enterocutaneous fistula** (ileal) [Failed conservative management]  **Sub-total** | Right hemicolectomy+ ileo-transverse anastomosis | 3  **3** | 2 (66.67)  **2 (66.67)** | 11.76  **11.76** |
| **Superficial wound dehiscence**\*  **Sub-total** | Secondary wound closure | 16  **16** | 0 (0.0)  **0** | 0.0  **0** |
| **Intra-peritoneal abscess (**Blunt abdominal injury)\*  **Sub-total** | Drainage of intraperitoneal abscess | 3    **3** | 2(66.67)  **2 (66.67)** | 11.76  **11.76** |
| **Colostomy reversal\***  Colonic tumour  Sigmoid volvulus  **Sub-total** | Resection + colostomy reversal  Colostomy reversal | 14  2  **16** | 2 (12.5)  0 (0.0)  **2 (12.5)** | 11.76  0  **11.76** |

|  |
| --- |
|  |

**KEY :** \* Re-do procedure; **Cum %** - Cumulative percentage of SSI with respect to total number of patients with SSI in the group.

**Table IV: Multivariate logistic regression analysis of risk factors responsible for wound infection.**

|  |
| --- |
| **Factor Odd’s ratio 95% CI Coefficient Standard error Z statistics P-value** |
| **Age**  < 20 1 - - - - -  21-30 0.415 0.1315- 1.3099 -0.8794 0.5864 -1.4996 0.134  31-40 0.3064 0.0965-0.972 -1.1829 0.5897 -2.0059 0.449  41-50 0.067 0.0118-0.3809 -2.7033 0.8868 -3.0484 0.231  51-60 0.2545 0.0383-1.6916 -1.3683 0.9663 -1.1960 0.157  61-70 0.4498 0.1608-1.2582 -0.7989 0.5248 -1.5223 0.128  71-80 1.101 0.897-1.123 1.443 0.056 1.501 0.119  **Sex**  Male 1 - - - - -  Female 1.1814 0.6147-2.2707 0.1667 0.3334 0.500 0.617  **Type of surgery**  Elective 1 - - - - -  Emergency 3.1098 1.2985-7.448 1.1346 0.4456 2.5461 0.011  **Duration of surgery**  **<** 1 hour 1 - - - - -  1-2 hours 2.0882 0.4085-10.6755 0.7363 0.8325 0.8844 0.376  2-3 hours 15.8296 2.776-90.2528 2.7619 0.881 3.1097 0.002  **Class of wounds**  Clean 1 - - - - -  C/ contaminated 1.033 0.1807-5.938 0.0352 0.8909 0.00395 0.969  Contaminated 4.2793 1.006-18.2036 1.4538 0.7387 1.968 0.049  Dirty 41.345 8.002-213.63 3.722 0.8379 4.4419 0.000  **ASA status**  I 1 - - - - -  II 0.7501 0.3694-1.5232 -0.2875 0.3614 -0.7956 0.426  III 1.1144 0.976-1.2724 0.1083 0.0676 1.6014 0.109  IV 3.0117 1.04-8.6473 1.1025 0.5381 2.0488 0.004  V 2.5917 1.4603-4.599 0.9523 0.2927 3.2536 0.001  **Cadre of surgeon**  Consultant 1 - - - - -  Sen. Registrar 0.456 0.3942-1.4563 1.1893 0.5834 1.1123 0.051  Registrar 2.153 1.14-5.854 0.9453 0.5567 2.1023 0.003  **Cigarette smoking**  No 1 - - - - -  Yes 0.7501 0.3694-1.5232 -0.2875 0.3614 -0.7956 0.426  **Diabetes**  Absent 1 - - - - -  Present 0.4699 0.0478-4.6226 -0.7552 1.1664 -0.6475 0.517  **Obesity**  Absent 1 - - - - -  Present 1.3708 0.7150-2.6281 0.3154 0.3321 0.9497 0.342  **Anaemia**  Absent 1 - - - - -  Present 2.5917 1.4603-4.599 0.9523 0.2927 3.2536 0.001  **Retroviral disease**  Absent 1 - - - - -  Present 3.0117 1.04-8.647 1.1025 0.5381 2.0488 0.004  **Use of drain**  No 1 **- - - - -**  Yes 2.5917 1.4603-4.599 0.9523 0.2927 3.2536 0.001 |