Data Analysis:

All analyses were performed using R Statistical Software (v4.1.3; R Core Team 2022),

The Sociodemographic, Indications, Outcomes, and Complications data were represented as frequency and percentage.

2 multivariate logistic regression model was performed to determine the association Between

1. Post ERCP Pancreatitis with and some risk factors [Age groups, Pna-cannulation, and Panc-stenting ].
2. Post ERCP complications and some risk factors []

Results:

A total number of 1909 patients who performed ERCP procedure between 2017, and 2022 was selected to participate in the study, among them 28.9% were ≤ 40 years, 36.1% and 35% were between 41-64 years, and ≥ 65 years respectively, while the mean (SD) for Age was 54.1 (20.3).

The Gender distribution was 45.2%, and 54.8% between males and females respectively, and most of the participants were mainly from the West Bank (94%) while the other 6% were from Gaza Strip.

The distribution of the participants per the admission year between 2017 and 2022 was 0.8%, 13.4%, 22.2%, 19.5%, 20.0%, and 24.1% respectively.

**Table 1: Demographics**

|  |  |  |
| --- | --- | --- |
| **Patient Characteristics n (%)** | | |
| **Age group** | ≤ 40 years | 551 (28.9%) |
|  | 41-64 years | 689 (36.1%) |
|  | ≥ 65 years | 669 (35%) |
| **Mean age (SD)** |  | 54.1 (20.3) |
| **Gender** | Male | 863 (45.2%) |
|  | Female | 1046 (54.8%) |
| **Referral site** | West Bank | 1793 (93.9%) |
|  | Gaza Strip | 116 (6.1%) |
| **Year** | 2017 | 15 (0.8%) |
|  | 2018 | 256 (13.4%) |
|  | 2019 | 423 (22.2%) |
|  | 2020 | 372 (19.5%) |
|  | 2021 | 382 (20.0%) |
|  | 2022 | 461 (24.1%) |
| **Total** |  | **1909 (100%)** |

The indications of our patients were mainly Obstructive jaundice with known stones (35.3%), Stent removal/exchange (20.3%), Obstructive jaundice with known malignancy (13.0%), and Obstructive jaundice with unknown biliary stricture suspected for malignancy (7.5%), while the other 14% of indication types were distributed between [Dilated CBD on image without jaundice, Post-operative complications, Acute cholangitis, Pancreatic disease other than malignancy, Other types of Obstructive jaundice, and Peri-ampullary lesion]

**Table 2: Indications**

|  |  |
| --- | --- |
| **Procedure Indications n (%)** | |
| **Obstructive jaundice with known stones** | 673 (35.3%) |
| **Stent removal/ exchange** | 388 (20.3%) |
| **Obstructive jaundice with known malignancy** | 248 (13.0%) |
| **Obstructive jaundice: unknown biliary stricture suspected of malignancy** | 144 (7.5%) |
| **Dilated CBD on image without jaundice** | 119 (6.2%) |
| **Post-operative complications** | 100 (5.2%) |
| **Acute cholangitis** | 90 (4.7%) |
| **Pancreatic disease other than malignancy** | 76 (4.0%) |
| **Obstructive jaundice: Others** | 53 (2.8%) |
| **Peri-ampullary lesion** | 18 (0.9%) |
| **Total** | 1909 (100%) |

the procedure outcomes were mainly Stones/Sludge (36.6%), Stent removal (16.2%), Strictures (10.7%), Stent exchange (8.1%), Stent insertion (6.1%), and the Normal ERCP represented only 5.0%.

at the same time, the 17.3% of the procedure outcomes was distributed between [Failure of cannulation, Leaking, Peri-ampullary diverticulum with biliary stones, Ampullary mass/ lesion,,,, etc.] **(Table 3)**

**Table 3: Outcomes**

|  |  |
| --- | --- |
| **Procedure Outcomes n (%)** | |
| **Stones/ sludge** | 699 (36.6%) |
| **Stent removal** | 309 (16.2%) |
| **Strictures** | 204 (10.7%) |
| **Stent exchange** | 155 (8.1%) |
| **Stent insertion** | 130 (6.1%) |
| **Normal ERCP** | 96 (5.0%) |
| **Failure of cannulation** | 74 (3.9%) |
| **Leak** | 55 (2.9%) |
| **Peri-ampullary diverticulum with biliary stones** | 34 (1.8%) |
| **Ampullary mass/ lesion** | 31 (1.6%) |
| **CBD dilation** | 27 (1.4) |
| **Peri-ampullary diverticulum** | 19 (1.0%) |
| **Retained stent** | 15 (0.8%) |
| **Failure to visualize/ altered anatomy** | 10 (0.5%) |
| **Stricture post-surgery** | 8 (0.4%) |
| **Hemobilia** | 6 (0.3%) |
| **Ampullary stenosis** | 5 (0.3%) |
| **Failure due to complications** | 5 (0.3%) |
| **Beaded appearance consistent with sclerosing cholangitis** | 4 (0.2%) |
| **Choledochal cyst** | 4 (0.2%) |
| **Pancreatic duct stricture** | 4 (0.2%) |
| **CBD polyp** | 3 (0.2%) |
| **Iatrogenic transection** | 3 (0.2%) |
| **Trans-biliary drainage** | 3 (0.2%) |
| **Intra-hepatic cyst** | 2 (0.1%) |
| **Stent in choledochoduodenostomy** | 2 (0.1%) |
| **Duodenal cyst** | 1 (0.1%) |
| **Leak with retained stones** | 1 (0.1%) |
| **Total** | **1909 (100%)** |

the post ERCP procedure complications represented only 5% of the whole cases, among them the Cardiopulmonary instability represented 2.1%, the Early Bleeding (8.4%), the Infection (21.1%), the PEP (45.3%) while the Perforation, Late Bleeding, Death and The Others Complications represented 7.4%, 1.1%, 11.6% and 3.2% respectively.

The ERCP procedure was performed successfully in 96.6% of the patients, and the failure prevalence represented only 0.04%.

This failure of the ERCP procedure was distributed as 37.5% Obstructing Tumor, 15.9% Altered Anatomy, 35.2% Failure of Cannulation, 6.5% Failure Due to Cannulation, and 6.5% for Others.

For determining the association between

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Dependent: complications |  | PEP | None | OR (univariable) | OR (multivariable) |
| age.group | <=40 | 18 (3.3) | 520 (96.7) | - | - |
|  | 41-64 | 18 (2.7) | 655 (97.3) | 1.26 (0.65-2.46, p=0.495) | 1.18 (0.60-2.32, p=0.637) |
|  | >=65 | 7 (1.1) | 639 (98.9) | 3.16 (1.37-8.18, p=0.010) | 2.86 (1.22-7.44, p=0.020) |
| pancannulation | Yes | 23 (6.0) | 361 (94.0) | - | - |
|  | No | 20 (1.4) | 1453 (98.6) | 4.63 (2.51-8.59, p<0.001) | 4.40 (2.29-8.44, p<0.001) |
| pancstenting | Yes | 5 (6.1) | 77 (93.9) | - | - |
|  | No | 38 (2.1) | 1737 (97.9) | 2.97 (1.00-7.11, p=0.026) | 1.04 (0.34-2.72, p=0.935) |