When analyzing the remote results of patient treatment, overall survival was assessed. One-year survival was 42.1±11.3%, three-year survival was 26.3±10.1%, and five-year survival was 10.5±7.0%. The median overall survival was 8 months [4.5; 36.5].

With regard to long-term outcomes, research shows that careful patient selection and preoperative preparation can contribute to achieving satisfactory survival outcomes in elderly patients. Particular attention should be paid to nutritional support of patients before surgery and early activation in the postoperative period [4, 5].

Conclusions

Careful selection of patients and the use of an adequate volume of surgical intervention make it possible to achieve satisfactory treatment results in elderly patients. In our study, complications after gastrectomy occurred in 3 (15.8%) patients. One-year survival was 42.1±11.3%, the five-year survival rate was 10.5±7.0%. The median overall survival was 8 months [4.5; 36.5].

LITERATURE

1. Prognostic factors for elderly gastric cancer patients who underwent gastrectomy / Sh. Endo [et al.]. // World Journal of Surgical Oncology. – 2022. – Vol. 20. – 10 p.

2. The short- and long-term outcomes of gastrectomy in elderly patients with gastric cancer / K. Komori [et al.]. // In Vivo. – 2020. – Vol. 34. – P. 2697–2703.

3. Study of the therapeutic strategy to improve survival outcomes from the perspective of perioperative conditions in elderly gastric cancer patients: a propensity score-matched analysis / E. Nomura [et al.]. // World Journal of Surgical Oncology. – 2024. – Vol. 22. – 197 p.

4. Enhancing surgical outcomes in elderly gastric cancer patients: the role of comprehensive preoperative assessment and support / Yu. Ushimaru [et al.]. // World Journal of Surgical Oncology. – 2024. – Vol. 22. – 136 p.

5. *Jung, J. H.* Quality of life changes in elderly patients after gastrectomy: perspective of an aged Asian society in the 2010s / J. H. Jung, S. S. Lee, H. Y. Chung // Annals of Surgical Treatment and Research. – 2022. – Vol. 102, № 4. – P. 214–222.

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ANALYSIS OF CANCER SCREENING EFFECTIVENESS IN PAKISTAN: CHALLENGES AND OPPORTUNITIES FOR EARLY DETECTION AND MORTALITY REDUCTION

Introduction

Pakistan was one of the few countries in the Eastern Mediterranean region to establish the National cancer registry (NCR) but due to lack of funding this effort was unable to sustain itself on the national level. Karachi cancer registry (KCR) has been established which is responsible for collecting and reporting data from major large hospitals of Karachi. The NCR report states that all functional cancer registries of Pakistan, including Pakistan Atomic Energy Commission (PAEC), Punjab Cancer Registry, Karachi Cancer Registry, Multan Cancer Registry, Armed Forces Institute of Pathology (AFIP) Cancer Registry and Shifa International Hospital Cancer Registry, contributed to this national effort. In its first analysis of cancer cases in the country between 2015 and 2019, the NCR said a total of 269,707 cases are analyzed with 46.7% males and 53.61% females. As per province wide distribution, 45.13% of cases are from Punjab, 26.83% from Sindh, 16.46% from Khyber Pakhtunkhwa and 3.52% from Balochistan. In

males, the top-five cancers in order of frequency are oral, liver, large bowel, lung and prostate. In females, the top-5 cancers included breast, ovary, oral, cervix and large bowel. Reports confirm breast cancer to be the most frequent cancer in Pakistan, one of the highest in Asia. In absence of any breast screening programme and along with social taboo to share with family results in late diagnosis. This is the major cause of breast cancer-related deaths in Pakistan, as per NCR report. In males, oral cancer is most common in Pakistan, which is mostly associated with the consumption of highly addictive psychosomatic agents like gutka and mainpuri (mixed grounded powder containing tobacco) [1].

Goal

The primary goal of this research is to analyze the epidemiology of cancer in Pakistan, evaluate the current state of screening programs, and assess their effectiveness in early detection and reducing mortality. The study also aims to identify barriers to cancer screening and propose actionable recommendations for improving nationwide cancer prevention and control strategies. Special attention is given to breast, prostate, colorectal, and cervical cancers, which are among the most prevalent types in Pakistan.

Material and methods of research

The study utilized a retrospective cross-sectional design to evaluate cancer screening programs in Pakistan. Data were sourced from the National Cancer Registry (NCR), Karachi Cancer Registry (KCR), Federal Breast Screening Center (FBSC), and other regional cancer registries, supplemented by global cancer observatory reports and scientific literature.

The results of the research and their discussion

The survival rate for breast cancer diagnosed at Stages 1 and 2 is 85%, but it drops significantly to 10% for late-stage diagnoses, specifically Stage 4. Therefore, early detection and management of breast cancer are pivotal in improving patient outcomes and reducing mortality. The study included a total of 5580 patients who visited the FBSC from 2020 to 2023. The study examined patient's data, including Breast Imaging Reporting and Data System (BIRADS) categories through double reading mammography and complementary ultrasound (USG) findings. The mean age of patients attending screenings from 2020 to 2023 was 48.50 ± 9.55 years, with the most common age group being 41–45 years 1,364 (24.4%), followed by 46–50 years 1,008 (18.1%). The ethnicity with the highest frequency was Punjabi 4,647 (83.3%), followed by Pukhtoon 417 (7.5%) and Kashmiri patients 243 (4.4%). The distribution of patients across BI-RADS categories was as follows: BI-RADS 0 (n=175, 3.10%), BI-RADS I (n=1,933, 34.60%), BI-RADS II (n=1,691, 30.30%), BI-RADS III (n=642, 11.50%), BI-RADS IV (n=612, 11.00%), BI-RADS V (n=389, 7.00%), and BI-RADS VI (n=138, 2.50%). When observing breast densities, Type B breast density was the most common, found in 2535 (49.97%) of right breasts and 2510 (49.69%) of left breasts. Type A density followed with 1021 (20.13%) in right breasts and 1021 (20.18%) in left breasts, while Type C and Type D densities were less prevalent. Regarding the trend in the number of visits for screening, most of the patients were first-time visitors 4,648 (83.3%), followed by second-time visitors 821 (14.7%), while third-time visitors made up 93 (1.7%) of the total. Biopsy reports revealed invasive breast cancer accounting for 580 patients (10.4%), followed by cases suspicious for malignancy 174 patients (3.1%), and benign breast disease 60 patients, (1.1%). Hence, the prevalence rate of invasive breast cancer during these four years was 10.4%. Regarding treatment 149 (2.7%) received chemotherapy, 241 (4.3%) received both chemotherapy and radiotherapy, and 2 (0.0%) received radiotherapy alone. Among those with a surgical history, 271 (4.9%) had a biopsy, and 136 (2.4%) had an FNAC [3].

A study from 2000 to 2023 found that the prevalence of prostate cancer in men in Pakistan was about 5.20%. A retrospective observational study was conducted at the clinical chemistry laboratory at the Department of Pathology & Laboratory Medicine, Aga Khan University Hospital (AKUH), Karachi Pakistan, which serves as a national reference lab for the country. Data from January 1st, 2017 till December 31st, 2019 were recorded in which 13997 prostate tests were performed. During the four-year period, a total of 6530 tests were performed for CA19–9, 893 for Calcitonin, and 54,769 for PSA. The highest test volumes occurred in 2019, with test volume continuously increasing from 2017 to 2019. In 2020, test volumes decreased for Calcitonin and PSA throughout the year. CA19–9 tests only declined during the lockdown but increased during the non-lockdown periods compared to previous years. The most significant declines during the 2020 lockdown period were seen for Calcitonin (−62.5%), followed by PSA (−51.8%) and CA19–9 (−19%). Additionally, a 10–year retrospective analysis of TURP specimens from January 2007 to January 2017 was conducted at Liaquat National Hospital in Karachi, Pakistan. TURP specimens were obtained by urologists and histopathology reports were prepared. The mean age of all patients who underwent TURP and having incidental prostate cancer patients was 68.51 with a standard deviation of 9.22 years respectively. 6th and 7th decades of life were the most common for all patients presenting with incidental prostatic carcinomas. The incidence of prostate cancer among all 2386 TURP specimens was calculated as 10.72%. Majority patients (90.9%) with incidental carcinoma were pathologically staged T1b. A difference between averages of two 5 year intervals i.e. [2007–2011] and [2012–2016] revealed a 3.92% difference i.e. an approximate numerical rise of 4%. Majority patients (49.21%) had higher (>7) Gleason scoresm [4].

Colorectal cancer (CRC) prevalence is rising in Pakistan, yet there are no national screening programs or guidelines in place to curb its development. The gold standard for CRC screening is colonoscopy, for its dual role as a diagnostic as well as therapeutic intervention in detection and removal of adenomas and their premalignant lesions. However, the effectiveness of colonoscopy is strongly associated with its quality, among them are cecal intubation rate, withdrawal time, quality of bowel preparation, and adenoma detection rate (ADR). A retrospective observational study on patients aged ≥ 18 years who underwent colonoscopy at the AKUH, Karachi, between July 1, 2017 to June 30, 2018. All colonoscopies were performed by gastroenterologists. Patient preparation consisted of clear liquid diet for 24 hours prior to colonoscopy, and 45 mL of bowel preparation solution consisted of sodium phosphate monohydrate and sodium phosphate heptahydrate with preservatives, given 6 hours apart. Patients were consciously sedated by 2–5mg midazolam and 2–3mg intravenous nalbuphine. Bowel preparation was classified into good, suboptimal/reasonable, and poor, on the basis of the Boston Bowel Preparation Scale (BBPS). All colonoscopies at AKUH were performed using the OLYMPUS manufactured EVIS EXERA III video colonoscopies. Any and all polyps found were removed and biopsied for histopathology. Total of 1985 patients of which 59.0% (1172) were males and 41.0% (813) females, with a mean age of 47.8±16.2 years (48.0, 19–88). The most common indication for colonoscopy was bleeding-per-rectum [28.0% (556)], and 94.4% (1873) of patients had good bowel-preparations. Most common abnormal finding was hemorrhoids (21.4%), with nonspecific colitis on histopathology (25.1%). Polyps were detected in only 12.5% (248) of colonoscopies, while 5.9% (118) and 4.0% (79) adenomas and carcinomas were found on histopathology, respectively. Overall PDR and ADR were calculated as 17.9% and 9.9%. Although no significant differences for either PDR (P = 0.378) or ADR (P = 0.574) were found considering gender, there was a significant greater PDR and ADR in patients ≥ 50 years (PDR:

24.8%; ADR: 15.0%). Furthermore, statistically higher PDR (25.7%) and ADR (18.6%) were found for patients with suboptimal bowel preparation (3.5%) [5].

Cervical cancer is the second most common cancer in women under the age of 50 and the most common cause of mortality among women worldwide. Pakistan has a population of around 60.6 million women belonging to the age group 15 and above, who are at the highest risk of developing this cancer. In 2020, over 600,000 women were diagnosed, and 342,000 women died from cervical cancer worldwide. 90% of all new cases and deaths occurred in low- and middle-income countries. Pakistan's health care system consists of both public and private sectors, but 70% of the population receives care from the private sector, and 85% is uninsured. According to the WHO, in 2021, over 5000 Pakistani women were diagnosed with cervical cancer, and 3006 deaths were reported. These numbers are believed to be low because there is no current national program for cervical cancer screening. Further, only 1 in 10 Pakistani have been screened for cervical cancer in the past five years. Overall, in 2019 less than 1% of women in Pakistan reported cervical cancer-screening tests. In Pakistan, the percentage of prevalence of high-risk strains of HPV was reported to be up to 90%. Pakistan has a national Extended Program Immunization (EPI) registry to track the administration of vaccines, however, it does not track HPV vaccines. Several smaller studies have found that HPV vaccination rates among Pakistani women were low.

Conclusions

This study highlights several critical challenges in cancer screening and early detection in Pakistan. Despite the establishment of regional and national cancer registries, the absence of a nationwide screening program remains a significant barrier to effective management. Breast cancer, the most common malignancy in Pakistan, often goes undetected until advanced stages due to socio-cultural taboos, lack of awareness, and limited access to screening facilities thus leading to high mortality rates particularly among young women. The FBSC can serve as a model center for the establishment of centers in other parts of the country, thereby promoting nationwide screening coverage. Prostate cancer screening faces similar challenges; however, disruptions caused by external factors such as lockdowns have highlighted vulnerabilities in maintaining consistent screening services. Colonoscopy, the gold standard for CRC screening, is underutilized, with only 12.5% of colonoscopies detecting polyps and an ADR of just 9.9%. The Ministry of Health of Pakistan can devise a standard cervical screening program and awareness campaigns (Pap smear testing) starting from the age group of 21 and should be integrated into routine primary health care service. Establishing a nationwide screening network, integrating preventive measures and launching awareness campaigns are urgent priorities. Addressing these challenges will require collaboration between government bodies, private healthcare, and international organizations to ensure equitable access to cancer screening and reduce the growing burden of cancer-related morbidity and mortality in Pakistan.

LITERATURE

1. National Cancer Registry of Pakistan: First Comprehensive Report of Cancer Statistics 2015–2019 / A. Ikram, S. Pervez, M. T. Khadim [et al.]. // J Coll Physicians Surg Pak. – 2023.

2. *Volchek, V. S.* Dynamics of cancer incidence and mortality in the Gomel region: statistical analysis and forecast using the ARIMA model until 2030 / V. S. Volchek, T. M. Sharshakova, D. M. Los // Health and Ecology Issues. – 2024.

3. *Majeed, A.* Scenario of Pakistan 5 Years After Screening Mammography Intervention: Are we ready for a National Guideline? / A. Majeed, R. Bangash // Preprints. – 2024.

4. Incidental finding of prostate cancer in Transurethral Resection of Prostate (TURP) specimens: a retrospective analysis from a Tertiary Care Hospital in Pakistan / T. K. Janjua [et al.]. // Pan African Medical Journal.

5. Adenoma detection rate as a quality indicator for colonoscopy: A descriptive cross-sectional study from a tertiary care hospital in Pakistan / M. S. Yousaf, S. Shafqat, R. C. Gill [et al.]. // Endoscopy International Open. – 2020.