

UNIVERSITI TEKNOLOGI MARA (UiTM)

**PREVALENCE OF COLORECTAL NEOPLASIA IN PATIENTS WITH
CHRONIC KIDNEY DISEASE UNDERGOING COLORECTAL CANCER
SCREENING IN
A UNIVERSITY TEACHING HOSPITAL**

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AUTHOR'S DECLARATION

I declare that the work in this manuscript was carried out in accordance with the regulation of Univesiti Teknologi MARA. It is original and the results of my own work, unless otherwise indicated or acknowledged as reference work. This manuscript has not been submitted to any other academic or non-academic institution for any degree or qualification.

I hereby, acknowledge that I have been supplied with Academic Rules and Regulation for Postgraduate, Univesiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

PREVALENCE OF COLORECTAL NEOPLASIA IN PATIENTS WITH CHRONIC KIDNEY DISEASE UNDERGOING COLORECTAL CANCER SCREENING IN A UNIVERSITY TEACHING HOSPITAL.

Introduction: Chronic kidney disease (CKD) is an independent risk factor for colorectal neoplasia and carcinoma. We aim to determine the prevalence of colorectal neoplasia and examine its associated factors in patients with CKD attending the nephrology clinic in Hospital UiTM.

Methodology: This was a cross-sectional single-centre study conducted in a university teaching hospital in Malaysia. The inclusion criteria are patients with CKD stages 3-5, age ≥ 50 years attending the nephrology clinic from December 2021 to May 2022. The exclusion criteria included a history of colorectal cancer, inflammatory bowel disease and first-degree relative with Colorectal Cancer (CRC). Recruited patients were screened with Faecal Immunochemical Test (FIT) and were scheduled for colonoscopy if the FIT was positive. The presence of colorectal neoplasia and its characteristics were recorded based on the endoscopic and histologic evaluation.

Results: Out of 168 subjects who fulfilled the inclusion criteria, the FIT-positive rate was 34.5% (n=58). Nine subjects who were FIT positive did not undergo colonoscopy, resulting in a final sample size of 159 subjects. The median (IQR) age was 66 (62-71) years. There was a male gender preponderance (66%) and most of the participants were of Malay ethnicity (93.7%). The CKD stage distribution were 45.3% (n=72) CKD 3; 34% (n=54) CKD 4; 8.8% (n=14) CKD 5 not on dialysis; and 11.9% (n=19) were on dialysis. Among those who underwent colonoscopy, the polyp detection rate was 69.4% (n=34) and the adenoma detection rate was 57.2% (n=28). There was one case of colorectal cancer. The prevalence of colorectal neoplasia in our cohort of CKD patients was 18.2%. Two or more polyps were found in 70.6% (n=24) of subjects. Adenoma ≥ 10 mm in size was found in 23.5% (n=8) participants, with the largest measuring 20mm. In multivariate analysis, usage of oral anticoagulant was significantly associated with colorectal neoplasia (OR 10.24, 95% CI [1.78-58.97]) (p-value 0.009).

Conclusion: The prevalence of colorectal neoplasia in subjects with CKD was 18.2%. The usage of oral anticoagulant was a significant risk factor for colorectal neoplasia.

Keywords: Chronic kidney disease (CKD), Colorectal Cancer (CRC), Colorectal neoplasia, Faecal Immunochemical Test (FIT), Renal Replacement Therapy (RRT).

MAIN TEXT

INTRODUCTION

Colorectal cancer (CRC) is the third and second most common cancer, respectively in men and women worldwide¹⁻². Mortality due to colorectal cancer is the fourth leading cause of cancer death in the world¹. More than one million individuals every year will develop CRC and the disease mortality rate is nearly 33% in developed country³. CRC is also the second leading cause of cancer-related death in the US. Japan (116.5) and Korea (82.8) had the highest crude incidence of CRC per 100000 in Asia, respectively⁴. Crude incidence rate of CRC per 100000 in Thailand was 25.3, followed by Vietnam (15.3), and Indonesia (11.3)⁴.

Based on reports from National Cancer Registry Malaysia data 2012-2016, in Malaysia, a developing country in Southeast Asia, CRC was the most common cancer in males with incidence rate of 12.7 per 100000 and the second most common cancer in females with incidence rate of 10.3 per 100,000⁵. Age Standardization Incidence rate (per 100000) of CRC in Malaysia for the year 2012 – 2016 was 14.8 in males and 11.1 in females⁵.

CRC arises from neoplastic epithelial polyps including adenomatous and sessile serrated polyps⁶. Adenoma is the most common precancerous colon polyp which believed to be the forerunner of CRC (approximately 80%)⁷. Polyps are characterised as non-neoplastic or neoplastic⁸. Advanced colorectal neoplasia is defined as any colorectal adenoma with at least one of the following features: ≥ 10 mm in size, villous component ($\geq 25\%$) or high-grade dysplasia; any serrated lesion ≥ 10 mm in size or with a dysplastic component; or any invasive colorectal cancer⁷⁻⁸.

Research has shown that CKD is significantly associated with increased risk of CRC in comparison with CRC risk in the general population without any comorbidities³. In Taiwan, Wu et al. showed that chronic kidney disease (CKD) patients who are not on dialysis are independently associated with a greater risk of CRC (Hazard ratio 1.79;95% confidence interval (CI) with 341 incidentals over 100000 person-year³. Another study done in South Korea by Oh et al. demonstrated that the incidence of CRC per 100000 person-years was 234.3(95% CI) in CKD+/DM- group⁹.

In 2018, there were 17,621 incidents of end-stage renal disease patients in Korea with an unadjusted incidence rate of 340.0 per million population¹⁰. The national prevalence of CKD is approximately 11.9% with a total burden of more than 2.5 million people in Taiwan¹¹. Primary causes were diabetes mellitus