

Individualised Screening Strategy for Colorectal Cancer Based on Risk Algorithms

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ABSTRACT

Prevention via earlier detection and screening of cancers represent an important strategy to minimise disease complications, mortality and morbidity, as well as health service utilisation. However, population-based screening is costly especially in some countries where screening services and resources are limited. Hence, an individualised approach to select high-risk individuals for screening is sometimes required in resource-deprived regions. This talk will highlight some of the risk prediction tools for colorectal cancer (CRC) as an example of a tailored, personalised approach to formulate and implement a risk-stratified screening programme for CRC and advanced colorectal neoplasia. In particular, it will present findings from one prospective, multi-centred colonoscopy trial that could inform individualization of screening strategies for detection of proximal advanced neoplasia. Flexible sigmoidoscopy (FS) and colonoscopy are two common screening tests for colorectal cancer. FS is currently the only endoscopy-based CRC screening modality which has been supported by randomised controlled trials as an effective tool to reduce CRC mortality. It has been increasingly used in Europe and Asia Pacific regions. The choice between FS and colonoscopy should be based on individual risks of advanced proximal neoplasia (APN). This study developed and validated a clinical scoring system to predict the risks of APN. We aimed to better inform screening participants and physicians on whether subsequent colonoscopy follow-up is warranted for subjects who received FS (i.e., when distal findings are known). We prospectively recruited 7,954 asymptomatic subjects who received screening colonoscopy in more than 13 study sites in the Asia Pacific region. We randomly allocated two-third of these subjects (5,303 participants) to the derivation cohort, and evaluated the independent risk factors for APN. The odds ratios for significant risk factors were used to develop a scoring system ranging from 0-15, divided into two tiers as: 0-3 "average risk" (AR) and ≥ 4 "high risk" (HR). A weighting was assigned to each independent variable in the risk score, applying the corresponding adjusted odds ratio and rounded to the nearest integer. Each screening participant had a score equivalent to the sum of their risk factors. The other 2,651 screening participants formed an independent validation cohort. The Cochran-Armitage test of trend was used to compare the prevalence of APN according to each score. The performance of the scoring system for predicting APN was evaluated. The prevalence of APN in the derivation and validation cohorts was 3.2% and 3.4%, respectively. Age, smoking status, family history of CRC in a first degree relative, and distal findings were found to be significant predictors. Utilising the scoring system, 79.5% and 20.5% in the validation cohort was classified as AR and HR, respectively. The prevalence of APN in the AR and HR groups was 1.9% and 9.4%, respectively; subjects in the HR group had 5.08-fold (95%CI: 3.38, 7.62; $p < 0.001$) increased prevalence of colorectal neoplasia than the AR group. The c-statistics of the scoring algorithm was 0.74 (95%CI: 0.68, 0.79), implying good discriminatory capability. The Hosmer-Lemeshow goodness-of-fit statistic evaluating the reliability of the validation set had a p value > 0.05 , implying a close match between predicted risk and real risk. To conclude, the scoring system based on age, smoking, family history, and distal finding is useful in predicting the risk of APN. We recommend that subjects who receive FS screening and score ≥ 4 points should be referred for colonoscopy workup. The seminar will end by highlighting the benefits and challenges associated with this risk-stratification approach.

Walkability, Safe City!

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ABSTRACT

Walkability is a concept that refers to the quality of walking. High walkability will inspire people to walk more. Previous studies have determined several factors that contribute to high walkability. These factors include width and material used for walkway, shade, crossings, continuity, ramp, safety, street furniture and activities. However, the implementation of these factors is not fully enforced. Compliance with these factors is progressing at a very low rate. Safe city guidelines which have been revised in 2013 are yet to be fully complied by the relevant authorities. This situation hinders people from walking in their neighborhoods and at their workplaces. This paper intends to highlight the loopholes that need to be patched to attract people to walk more in their daily activities. Fieldwork observations are the main methods used. The city that was chosen for this study is Taipan, USJ 10 Subang Jaya, Selangor. The local authority, Subang Jaya Municipal Council, aims to create Subang Jaya as a women friendly green city. In moving towards achieving Sustainable Development Goal No. 5, 10, 11 and 13 and also the New Urban Agenda commitments, Subang Jaya Municipal Council is working on its action plans to comply to the principles of these goals. Photographs were taken and compared with the safe city and other relevant guidelines. Findings show good government policies are available, but their enforcement is yet to be fully implemented. Failure to comply with these requirements will only deter people from achieving high walkability in their neighborhood and at the workplace.