Introduction

Screening for colorectal cancer (CRC) has proven effective for reducing CRC mortality or even incidence. The rationale of CRC screening comes from different survival by different stages of CRC and prevention of colorectal carcinogenesis by detection and resection of precancerous neoplasm. In the Asia-Pacific, two-tier screening strategy with fecal immunochemical test (FIT) as the primary screening tool followed by verification colonoscopy for FIT positive cases is the main stay of screening and currently several countries (Australia, Japan, Korea, Singapore and Taiwan) in this region have already launched nationwide screening programs. Screening, however, requires funding for resource and is not without risk therefore balancing between these two aspects is crucial in terms of cost (economical), effectiveness (biology), and cot-effectiveness viewpoints. Whilst age is a well-established risk factor of colorectal neoplasms, early-age screening may lead to a higher cost to detect one significant neoplasm, whereas screening for extremely old age people may lead to limited survival benefit from screening and increased risk of screening-related complication.

Scientific rationale of age cutoff for CRC screening

1. When to start screening?

CRC risk is strongly related to age, with the highest incidence rates being in older males and females. According to previous studies from different regions with moderate to high CRC prevalence, there is a universal finding that the age-specific incidence rates increase sharply from around age 50-54 therefore most of the screening program use 50 years as the age cutoff to start screening.

Screening can also reduce CRC incidence. In this context, advanced adenoma should also be the target lesion to be detected hence the age at which the prevalence of advanced neoplasm significantly increases becomes the key to determine the starting age. Previous studies have also shown that the prevalence of advanced neoplasm significantly increases at the age of 50. It is therefore justified to start CRC screening at age 50.

2. When to stop screening?

There is adequate evidence that the benefits of screening by detection and early intervention of early cancer-
ous and precancerous neoplasm decline after age 75 years. The lead time between the detection and treatment of colorectal neoplasm and a mortality benefit is substantial, and competing causes of mortality make it progressively less likely that this benefit will be realized with advancing age. In addition, screening related risk/complication may cause more unfavorable results in the elderly. For example, preparation for colonoscopy is one of the most bothersome aspects of colonoscopy and sedation in the elderly is also associated with increased sensitivity and sedation risk due to a number of physiologic changes with age. Perforation is one of the major complications of colonoscopy and its risk appears to be increased in the elderly. The USPSTF therefore recommends against routine screening for colorectal cancer in adults 76 to 85 years of age, though there may be considerations that support colorectal cancer screening in an individual patient, and also recommends against screening for colorectal cancer in adults older than age 85 years.

**Current situation in the Asia-Pacific and future perspectives**

Among five existent nationwide screening programs in the Asia-Pacific, all programs except Japan set 50 years as the starting age and only Australian and Taiwanese programs have an upper age limit at 74 years. Further adjustment of screening policy is necessary but dialogue amongst major stakeholders including screening organizer (government), professional societies, hospitals, clinicians, and community-based non-profits are indispensable.

In some western countries, increasing incidence of young CRC was observed and raised the issue whether some subgroup of peoples should be further include in the screening population. We have observed increased risk of advanced neoplasms in male peoples aged 40 to 49 if they have smoking habit or metabolic syndrome with comparable or even higher risk of advanced neoplasm than women 10 years older. Adding the fact that increasing prevalence of metabolic disorders in developed Asian countries and the higher prevalence of smoking in male in this region, further study is thus necessary to investigate the feasibility (eg. manpower, funding support) and cost-effectiveness of including younger population for screening in individual countries.

**Conclusions**

Current recommendation for age range of CRC screening is optimal. Whether earlier or older screening could be justified in some subgroup of population need further study.

**References**


