The Dilemma of the Threshold Age to Start Screening for Colorectal Cancer in Saudi Arabia

Adenomas are the precursors of adenocarcinomas, and the basic requisite to the institution of a colorectal cancer (CRC) screening program rests largely on the baseline prevalence of adenomas in a given population. In this issue of the Journal, Almadi et al have described the prevalence of adenoma in a large cohort of Saudi patients who underwent colonoscopies for various indications as well as opportunistic screening for CRC[1]. The authors also aimed to define the possible age in which a CRC screening program could be initiated. The importance of this study stems from its aim to identify the prevalence of colorectal polyps in the Kingdom of Saudi Arabia. It is important to note, however, that this is a retrospective study which is hospital-based and from a single tertiary care center. Moreover, the detection of polyps in any screening program depends on the skill of the endoscopist, and in this study, one must note that it comes from a teaching hospital where residents and fellows must be trained to conduct such a procedure. Finally, the majority of the individuals included in the study did not have colonoscopy for screening. These factors and biases affected the results of the study.

The authors have reported separately on 204 colonoscopies that comprised 7.7% of the total 2654 scopes performed. These colonoscopies were performed for screening only. The mean age of the subjects in this sample was 50.4 years. These colonoscopies have described the prevalence of adenomas, i.e., 3.59% till the age group 40-49 years. It increased dramatically thereafter to 10.10% in the age group 50-59 years and continued to rise to 12.06% in the age group 80-89 years.[2] The prevalence of adenomas in all the age groups below the age of 50 years in the current study ranged between 6.3% and 13.3%. This is well above the 3.59% that was reported in the age groups below 50 years in the necropsy study. This means all the age groups below the age 50 years in the Saudi sample of 204 colonoscopies have a relatively higher risk for adenomas than their US counterparts. This is a puzzling finding that is not supported by the age-standardized rate for colorectal cancer in Saudi which is far lower than that of the USA.[2] The age-standardized rate for Saudi men is 12/100,000 compared to 48.2/100,000 for US men.[1] The age-standardized rate for Saudi women is 9.4/100,000 compared to 38/100,000 for US women.[1] Table 1 shows a comparison between the age-standardized rates for all age groups between Saudi Arabia and the USA. In all the age groups, Saudi Arabia has a far lower age-standardized rate compared to that of USA. Moreover, there is another inconsistent finding; the age groups 50-55 and 55-60 years in the current study had the lowest rate of adenomas, i.e., 0 and 4.8%, respectively, but the younger age group (35-40 years) had a higher adenoma rate of 13.3%. These inconsistencies in the data cast a shadow on its reliability, and that is why, the authors were unable to identify a cut-off age at which there was a dramatic increase in the prevalence of adenomas in the sample.

The benchmark average adenoma detection rate is 15% for women and 25% for men in the USA (3). However, the detection rate increased to 25.4% in women and 41.2% in men in a prospective study from an academic center in the USA.[4] The study did not report on the median age of the subjects involved; an increase in the age can skew the results to a higher value. The interesting observation is that the current study reported an overall adenoma detection rate for Saudi women of age 55 years and above that was similar to their US counterparts [Table 1]. But the incidence of colorectal cancer in Saudi women is much less than that in US women (9.4 vs. 38 per 100,000, respectively).[3] One cannot explain how Saudi women who have a similar adenoma rate like that of US women had a lesser rate of cancer, especially if one knew that there was no screening program in Saudi, while US women who enjoyed the privilege of a screening program had a higher rate of colorectal cancer.

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The Saudi Cancer Registry reported the age-standardized rates of colorectal cancer for each age group [Table 1]. Clearly the rate increased to the maximum in the age group 45-49 years where it was 8/100,000, while it was 3/100,000 in the age group 40-44 years. The data indicated that cancer in the Saudi population jumps in incidence at an earlier age group compared to the West, namely around 45-49 years. The median age at diagnosis for colorectal cancer was 57 and 59 years for Saudi women and men, respectively.\(^1\) It is lower than that in the USA where it is 72 and 68 years, respectively.\(^2\) This gives indirect evidence that colorectal cancer develops at a younger age in Saudis, and thus, one would expect adenoma prevalence to match these findings, especially in the age groups 40-44 and 45-49 years. The data in the present study support this indirectly. The adenoma detection rate increased from 3.6%-10.2% in the age groups 45-50 and 50-55 years for men. For women, the adenoma detection rate increased at an earlier age from 6.4%-11.2% in the age groups 40-44 and 45-50 years. This coincided well with the age at diagnosis of colorectal cancer as mentioned earlier, with Saudi women being diagnosed at an earlier age compared to Saudi men.

The above indirectly pointed to the fact that screening in Saudi Arabia should start at an earlier age, namely 45 years, at least for women.

The authors are commended for conducting this retrospective review and for stimulating the discussion about this topic. Definitely one agrees with the authors that the answer to the feasibility of a national screening program rests with initiating a prospective multi-center national study that employs endoscopists with certified skills and where all endoscopies are recorded for a third-party validation. The endoscopes utilized should be assessed technically and periodically as this may affect the detection rate.

### Table 1: Comparison of age-standardized rates for colorectal cancer between Saudi Arabia and the United States of America

| Age group, years | Saudi Arabia | United States of America |
|------------------|--------------|--------------------------|
| 20-24            | 0.6          | 0.5                      |
| 25-29            | 0.7          | 1.2                      |
| 30-34            | 1.1          | 2.6                      |
| 35-39            | 2.5          | 4.9                      |
| 40-44            | 3.0          | 9.2                      |
| 45-49            | 8.0          | 17.2                     |
| 50-54            | 7.3          | 36.2                     |
| 55-60            | 15.9         | 57                       |

Data extracted from the Saudi Cancer Registry, 2009\(^2\)

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