

## Recent Advances in the Total Management of Colorectal Cancer

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Considerable improvements in the survival and outcome of colorectal carcinoma have been made in recent years. These have been the result of advances in investigations, intervention as well as in follow-up management. Research continues in the laboratory, where significant discoveries and innovations pave the way for future progress. This issue highlights some of these exciting areas with invited reviews from recognised overseas experts and experience from the local Singapore context.

Effective management of colorectal cancer depends on early detection. Progress in this aspect would be by improving diagnostic tools and also in encouraging patients to present early. At present, fiberoptic endoscopy is the investigation of choice because of accuracy and capacity to biopsy/remove lesions found. Improvements in endoscopy include improved optics, magnifying features, localizing techniques, endoscopic resection and endoscopic assisted surgery. The paper by Togashi et al<sup>1</sup> highlights these aspects in Japan, where many of these advances are made. However, colonoscopy carries the risk of perforation in 0.2%<sup>2</sup> and virtual colonoscopy [computed tomography (CT) colonography] is being developed to avoid these risks. Once the diagnosis has been made, accurate staging can optimize treatment. Modalities like ultrasound, CT scan, magnetic resonance imaging (MRI), positron emission tomography (PET) and radioimmunoscintigraphy are being developed for staging, as well as detection of recurrences. The paper by Tan et al<sup>3</sup> illustrates some of these points well.

Accurate preoperative staging of rectal cancer has become essential with the increasing number of viable treatment options available. These include local resection, trans-abdominal resection and pre-operative adjuvant radio-chemotherapy. Benign or early malignant rectal neoplasm can be excised by local resection. Patients with rectal tumours invading into the muscularis propria will benefit from preoperative radio-chemotherapy, and the paper by Tjandra<sup>4</sup> details the significant advances made in this area. Despite early scepticism, several adjuvant 5-fluorouracil (5-FU)-based chemotherapy trials have confirmed significant benefits in high-risk colon cancer. 5-FU plus leucovorin for 6 months is generally considered the benchmark for adjuvant treatment in stage III (Dukes' C) colon cancer. Where rectal adenocarcinoma invades the muscularis propria and/or regional lymph nodes, postoperative chemoradiotherapy is considered the adjuvant therapy of choice in the USA. Most European investigators advocate preoperative intensive short-course irradiation instead.<sup>5</sup> The paper by Ong<sup>6</sup> addresses some of the controversies and future directions on these issues.

In the surgical management of colorectal cancer, the development of colonic stents offers a valuable option in treating malignant large bowel obstruction. This technique is potentially very useful in dealing with elderly patients with comorbidity and those with unresectable disease. In the former, it allows time for the patient's overall medical condition to improve and often enables them to proceed to an elective single stage procedure (avoiding a temporary stoma). Minimally invasive (laparoscopic) techniques are being refined for colorectal cancer surgery with well documented advantages of less postoperative pain, reduced ileus, shorter hospital stay, better cosmesis and earlier return to work. In the hands of experienced laparoscopic and colorectal surgeons, the initial concerns over port site recurrences are probably unfounded and the long-term survival at least comparable with open surgery.<sup>7</sup> Even in open surgery, studies have consistently shown that better outcomes are achieved by skilled specialist surgeons.<sup>8</sup> The paper by Leong<sup>9</sup> draws important attention to the technical expertise in mesorectal excision for rectal cancer. The advent upon the horizon of robotics and telemedicine promises that technology will continue to contribute to advancing surgical technique.

However, 30% to 50% of patients who undergo primary resection with curative intent will relapse and die of cancer. Hence, patients have undergone intensive follow-up designed to detect recurrent cancer and metachronous (second colorectal primary) tumours with the hope of improving survival. Meta-analysis of five trials have shown that intensive follow-up have resulted in increased detection of isolated recurrences and reduction in mortality.<sup>10</sup> Better imaging

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techniques as mentioned above will continue to contribute to improved survival.

For the many patients that do relapse and progress to stage IV disease, a particular subset (that of isolated liver metastases) seems to have a better prognosis than the usual end-stage disease. The peculiar vascular drainage of the colon and rectum via the portal system to the liver prior to systemic drainage probably accounts for this situation. Metastases confined to the liver accounts for up to half of all metastatic colorectal disease. Advances in liver surgery and the changing concepts and indications for isolated liver metastases have much to do with improving results in the management of this disease. Five-year survival rates of up to 40% and more are not uncommon, and the paper by Teh<sup>11</sup> details the local experience with resections for isolated colorectal metastases. In situations where resection is not possible, technological advances have introduced new techniques like radiofrequency ablation (RFA) and cryosurgery, and this is discussed in the paper by Lau et al.<sup>12</sup>

Finally, advances made in colorectal cancer basic science research have been too numerous and diverse to mention. However, the articles in this issue provide a sampling of the important potential breakthroughs. The paper by Tang<sup>13</sup> illustrates some of the research in the field of colorectal cancer chemoprevention. The paper by Barbour and Gotley<sup>14</sup> highlights some of the important discoveries in cancer metastasis made at Professor Gotley's laboratories at the Princess Alexandra Hospital, Brisbane. The paper by Jayne<sup>15</sup> highlights molecular biology and clinical research done in malignant peritoneal disease.

Hence, there have been good progress made and there will continue to be good hope for patients suffering from colorectal cancer.

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