Editorial

A Perspective on Adjuvant Chemotherapy of Testicular Cancer

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Testicular tumors represent an area of therapeutic triumph for cytotoxic chemotherapy. At the present time, metastatic testicular cancer is a clinical situation in which curative intent aggressive drug treatment is clearly indicated. Chemotherapy now has a variety of potential and actual roles to play in the treatment of these tumors. These roles include (1) curative treatment of disseminated, or stage III, disease, (2) palliative treatment of disseminated disease, (3) adjuvant treatment after surgery and/or radiation for stage I and II disease, and (4) alternative curative intent therapy for stage I and/or II disease after radical orchiectomy. This variety of potential and actual roles makes testicular carcinoma an excellent microcosm for examining the various possibilities for drugs in clinical oncology.

Testicular malignancy represents approximately 1–2% of all malignant tumors of males. It is the most common malignant tumor among men between the ages of 29–35, and most tumors occur between the ages of 20 and 40 [1–4]. As these tumors generally occur in men in the prime of life, the psychological impact of the disease is great [5].

Tumors arising from the testes are divided into several histological types, many of which have several subgroups. The nomenclature of the principal neoplasm has become chaotic as various authors have employed different terminologies and have not always made clear their criteria for defining and naming particular types of tumors. Two of the most important systems in use are those of Dixon and Moore (AFIP) based on their experience of 900 cases [6–8], and those of Collins and Pugh derived from 995 cases reviewed by the British Testicular Tumor Panel and Registry [1]. It is generally agreed that the classification of these tumors falls into two general categories: The germinal and the non-germinal tumors, respectively, with germinal tumors comprising approximately 97% of the total. Clinical staging [9, 10] in testicular tumors is useful as a means of planning treatment and evaluating the efficacy of treatment afterwards.

Probably the most significant development over the last 15 years in the staging of testicular tumors has been the improved technology of lymphangiography. Although far from perfect, lymphangiography has provided the opportunity to visualize pelvic and retroperitoneal lymph nodes, to study their architecture, and
to determine potential abnormalities which are suggestive of malignant spread. Testicular lymphatics accompany the internal spermatic artery and vein, and drain into the lumbar nodes. The right trunks terminate in the right lumbar glands which lie between the level of the aortic bifurcation and the renal vein. The left testicular lymphatics drain into the periaortie nodes near the left renal vein in approximately two-thirds of patients.

Correlation of lymphographic findings with surgical staging are important. Wallace and Jing [11] have reported that surgical or autopsy findings, or both, correlated well with the results observed in pedal lymphangiograms. Of 18 cases with a positive roentgenographic interpretation, 17 (94%) had a positive finding in the nodes at surgical exploration. In 49 negative lymphangiograms, only 8 proved to be false negative after lymphadenectomy.

Coordinated treatment by surgery, radiotherapy, and chemotherapy has secured a marked improvement in the survival rates for patients with tumors of the testes over the last 15-20 years. None of the testicular tumors are common, however, and although adequate clinical experience can be acquired in specialized centers, results of treatment of rare tumors are reported of necessity on an anecdotal basis. The problem facing clinicians is how to blend these various modalities into optimum programs of treatment. Rubin [4] has pointed out the increasing use of combined therapy (i.e., surgery and radiotherapy) that is coupled with the rising cure rate noted in end-result reporting. Twenty years ago, combined therapy was employed in 46% of all patients with testicular tumors. In the period 1960-1964, use of this approach rose to 68% of all cases.

The treatment of the primary tumor is generally agreed upon to be orchiectomy, thus providing both the essential diagnosis and information for treatment planning and removing the primary tumor from the patient. Surgical removal of the primary tumor is always indicated immediately after the clinical diagnosis. This also permits serial section of the testis to determine the proper histopathologic diagnosis. The current practice is to perform an orchiectomy that includes high inguinal ligation of the vas and spermatic vessels, complete removal of the contents of the inguinal canal, and removal of the testis and its adnexa, including the parietal layer of the tunica vaginalis.

There is undoubtedly a curative potential in orchiectomy alone, but it is rarely, if ever, used as the sole treatment [12, 13]. Since the prime mechanism of metastasis is by the lymphatics and retroperitoneal lymph nodes are the probable initial site of dissemination, there is general agreement that the retroperitoneal nodes must be treated.

Stage II testicular carcinoma is the stage where all of the therapeutic modalities come together as having important potential roles to the play. The possibilities for interaction between the three modalities, in stage II, are numerous, yet the available clinical trial patient resources are uncommon. For each modality there are critical questions which need to be asked to firmly establish the comparative cost-benefit ratios for their application.

The options for stage II disease after orchiectomy become quite numerous (Table 1). The relative roles for radiation vs surgery have not been clearly established at this time. Both modalities alone have been reported to give roughly com-