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NCCN Testicular Cancer Panel Members

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For help using these documents, please click here

Staging

Manuscript

References

Clinical Trials: The NCCN believes that the best management for any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

To find clinical trials online at NCCN member institutions, click here: nccn.org/clinical_trials/physician.html

NCCN Categories of Consensus: All recommendations are Category 2A unless otherwise specified.

See NCCN Categories of Consensus

Summary of Guidelines updates

These guidelines are a statement of consensus of the authors regarding their views of currently accepted approaches to treatment. Any clinician seeking to apply or consult these guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient’s care or treatment. The National Comprehensive Cancer Network makes no representations or warranties of any kind, regarding their content use or application and disclaims any responsibility for their application or use in any way. These guidelines are copyrighted by National Comprehensive Cancer Network. All rights reserved. These guidelines and the illustrations herein may not be reproduced in any form without the express written permission of NCCN. ©2006.
Summary of the Guidelines updates

Summary of changes in the 1.2007 version of the Testicular Cancer Guidelines from the 1.2006 version include:

Global Changes:
- The term "Observe" was changed to "Surveillance" throughout and RPLND was clarified as "open nerve-sparing".

Seminoma
- The recommendation to discuss sperm banking was added to the Primary Treatment section. The biopsy was clarified as an "open inguinal" biopsy and the ultrasound was defined as "suspicous for intratesticular abnormalities" (TEST-1).
- Stage IA, IB, IS: The RT recommendation was modified to include para-aortic ± ipsilateral iliac nodes. Single agent carboplatin was also added as a treatment option with a category 3 designation and supporting reference (TEST-3).
- Stage IIA, IIB: Consider EP x 4 cycles for selected stage IIB pages was added as a treatment option (TEST-3).
- For patients who have recurrence after RT or observation for Stage I or II disease, the recommendation is to treat according to the extent of disease at relapse (TEST-3).
- Stage IIB, IIC, III after primary treatment with chemotherapy: The CT scan was clarified to be of the chest, abdomen and pelvis. Serum tumor markers were added. The categories after the CT scan were modified to include marker status. Footnote h is new to the page and includes recommendations for persistent, elevated beta-hCG but not rising (TEST-4).

Nonseminoma
- Footnote j is new throughout to the recommendation of RPLND, "Surgery is recommended within 4 weeks of CT scan, and 7-10 days of markers". This has a category 2B designation.
- The terminology defining landing zone was modified to include "symptomatic" metastatic sites and "aberrant lymphatic drainage" (TEST-7).
- Footnote m, "There is limited predictive value for PET scan for residual masses" is new to the page TEST-10.
- A note was added to the BEP regimen on page TEST-B that some NCCN institutions administer bleomycin on a 2, 9, 16 day schedule.
**Testicular Cancer**

**STAGING, MS, REFERENCES**

**WORKUP PRIMARY TREATMENT PATHOLOGIC DIAGNOSIS**

**Suspicious testicular mass**
- H&P
- Alpha-fetoprotein (AFP)
- beta-hCG
- Chemistry profile, including LDH
- Chest x-ray
- Optional:
  - Testicular ultrasound

**Discuss sperm banking**
- Inguinal orchiectomy
- Consider open inguinal biopsy of contralateral testis if:
  - Suspicious ultrasound for intratesticular abnormalities
  - Cryptorchid testis
  - Marked atrophy

**Seminoma**
(AFPG negative; may have elevated beta-hCG)

**Nonseminomatous germ cell tumor**

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*a* Quantitative analysis of beta subunit.

*b* This includes seminoma histology with elevated AFP.

**Note:** All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.
Seminoma

(AFP negative; may have elevated beta-hCG)

<table>
<thead>
<tr>
<th>PATHOLOGIC DIAGNOSIS</th>
<th>POSTDIAGNOSTIC WORKUP</th>
<th>CLINICAL STAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal/pelvic CT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest CT if:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive abdominal CT or abnormal chest x-ray</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeat beta-hCG, LDH, AFP if elevated preoperatively</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brain MRI, if clinically indicated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bone scan, if clinically indicated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discuss sperm banking</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stage IA, IB, IS

Stage IIA, IIB

Stage IIC, III

See Primary Treatment and Follow-up (TEST-3)

See Primary Treatment and Follow-up (TEST-3)

See Primary Treatment and Follow-up (TEST-3)

Mediastinal seminoma should be treated as good risk nonseminomatous germ cell tumor with etoposide/cisplatin for 4 cycles or bleomycin/etoposide/cisplatin for 3 cycles.

If positive, treat as nonseminoma.

Elevated values should be followed with repeated determination to allow precise staging.

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Seminoma

**CLINICAL STAGE**

**PRIMARY TREATMENT**

**Stage IA, IB, IS**
- RT: Infradiaphragmatic (20-30 Gy) to include para-aortic ± ipsilateral iliac nodes
- Surveillance if:
  - Horseshoe or pelvic kidney
  - Inflammatory bowel disease
  - Prior RT
- Consider surveillance if: (category 2B)
  - T1 or T2 histology in selected patients committed to long-term follow-up
  - Single agent carboplatin (category 3)

**Stage IIA, IIB**
- RT: Infradiaphragmatic (35-40 Gy) to include para-aortic and ipsilateral iliac nodes
- Consider EP x 4 cycles for selected stage IIB patients

**FOLLOW-UP**

**Stage IA, IB, IS**
- H&P + chest x-ray, AFP, beta-hCG, LDH: every 3-4 mo for year 1, every 6 mo for year 2, then annually
- Pelvic CT annually for 3 years (for patients status post only para-aortic RT)
- Recurrence, treat according to extent of disease at relapse

**Stage IIA, IIB**
- H&P, AFP, beta-hCG, LDH: every 3-4 mo for years 1-3, every 6 mo for years 4-7, then annually
- Abdominal/pelvic CT at each visit, chest x-ray at alternative visits (up to 10 y)
- Recurrence, treat according to extent of disease at relapse
- See Additional Therapy and Follow-up on TEST-4

- Good risk
  - EP for 4 cycles (category 1)
  - BEP for 3 cycles (category 1)

- Intermediate risk
  - BEP for 4 cycles (category 1)

**See Additional Therapy and Follow-up on TEST-4**

- EP = Etoposide/cisplatin
- BEP = Bleomycin/etoposide/cisplatin

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2 See Risk Classification (TEST-A).

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STAGE IIB, IIC, III AFTER PRIMARY TREATMENT WITH CHEMOTHERAPY

**No residual mass and normal markers**

- Chest, abdominal, pelvic CT scan
- Serum tumor markers

**PET scan (preferred)**

- **Negative**
  - Surveillance
- **Positive**
  - Consider surgery with biopsy or biopsy and salvage therapy or RT (category 2B)

**Residual mass and normal markers**

- PET scan not feasible
  - Surveillance or Surgery or RT (category 2B)

**Residual mass (nodes > 3 cm on CT)**

- Surveillance or Surgery or RT (category 2B)

**Residual mass (nodes ≤ 3 cm on CT)**

- Surveillance

**Progressive disease (growing mass or rising markers)**

- H&P + chest x-ray, AFP, beta-hCG, LDH: every 2 mo for year 1, every 3 mo for year 2, every 4 mo for year 3, every 6 mo for year 4, then annually
- Abdominal/pelvic CT at month 4 of year 1 s/p surgery, otherwise abdominal/pelvic CT every 3 mo until stable
- PET scan as clinically indicated

Recurrence, See Salvage Therapy (TEST-12)

See Salvage Therapy for nonseminoma (TEST-12)

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h For persistent elevated beta-hCG which is not rising, repeat serial markers, testosterone suppression test and consider a PET scan.

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**Nonseminomatous germ cell tumor**

- Abdominal/pelvic CT
- Chest CT if:
  - Abnormal abdominal CT
  - Abnormal chest x-ray
- Repeat beta hCG, LDH, AFP
- Brain MRI, if clinically indicated
- Bone scan, if clinically indicated
- Discuss sperm banking

### CLINICAL STAGE

- Stage IIA, IIB:
  - See Postdiagnostic Treatment (TEST-7)

- Stage IIC, IIIA, IIIB, IIIC, and brain metastasis:
  - See Postdiagnostic Treatment (TEST-10)

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b This includes seminoma histology with elevated AFP.
e Elevated values should be followed with repeated determination to allow precise staging.
i Treatment may be initiated prior to histology for patients with rising markers and a deteriorating clinical situation.

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Note: All recommendations are category 2A unless otherwise indicated.

Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.
## Testicular Cancer: Nonseminoma

### Staging, MS, References

#### CLINICAL STAGE: POSTDIAGNOSTIC TREATMENT

<table>
<thead>
<tr>
<th>Stage IA</th>
<th>Surveillance (in compliant patients)</th>
<th>Serve Follow-up for Nonseminoma (TEST-11)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Open nerve-sparing RPLND***</td>
<td>Serve Postsurgical Management (TEST-9)</td>
</tr>
<tr>
<td>Stage IB</td>
<td>Open nerve-sparing RPLND***</td>
<td>Serve Postsurgical Management (TEST-9)</td>
</tr>
<tr>
<td></td>
<td>or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemotherapy: BEP for 2 cycles (category 2B)</td>
<td>Serve Postchemotherapy Management (TEST-8)</td>
</tr>
<tr>
<td></td>
<td>or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surveillance (only if T2, compliant patients [category 2B])</td>
<td>Serve Follow-up for Nonseminoma (TEST-11)</td>
</tr>
</tbody>
</table>

| Stage IS | Persistent marker elevation | Chemotherapy: EP for 4 cycles or BEP for 3 cycles | Serve Postchemotherapy Management (TEST-8) |

The EP and BEP chemotherapy regimens have shown survival advantage in randomized clinical trials and may be considered as category 1 compared with other chemotherapy regimens.

**EP** = Etoposide/cisplatin  
**BEP** = Bleomycin/etoposide/cisplatin  
**RPLND** = Retroperitoneal lymph node dissection

---

**Note:** All recommendations are category 2A unless otherwise indicated.  
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

---

/jSurgery is recommended within 4 weeks of CT scan and 7-10 days of markers (category 2B).
CLINICAL STAGE

Stage IIA
- Markers negative
- Persistent marker elevation

Stage IIB
- Markers negative
- Persistent marker elevation

POSTDIAGNOSTIC TREATMENT

Stage IIA
- Open nerve-sparing RPLND
- or
- Primary chemotherapy (category 2B):
  EP for 4 cycles or BEP for 3 cycles

Stage IIB
- Lymph node metastases, within lymphatic drainage sites (landing zone positive)
- Multifocal symptomatic lymph node metastases with aberrant lymphatic drainage

EP = Etoposide/cisplatin
BEP = Bleomycin/etoposide/cisplatin
RPLND = Retroperitoneal lymph node dissection

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

See Risk Classification (TEST-A).

Surgery is recommended within 4 weeks of CT scan and 7-10 days of markers (category 2B).

See Primary Chemotherapy Regimens for Metastatic Germ Cell Tumors (TEST-B).
POSTCHEMOTHERAPY MANAGEMENT

Stage IB, IS, IIA, IIB treated with primary chemotherapy

- Negative markers, residual mass
  - RPLND\(^j\) or Surveillance (category 2B)
- Negative markers, Normal CT scan, no mass
  - RPLND\(^j\) (category 2B) or Surveillance (category 2B)

\(^j\)Surgery is recommended within 4 weeks of CT scan and 7-10 days of markers (category 2B).

Follow-up for Nonseminoma (see TEST-11)

RPLND = Retroperitoneal lymph node dissection

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.
Stage IA, IB, IIA, IIB treated with open nerve-sparing RPLND

pN0
- Surveillance (preferred)
- or Chemotherapy: EP for 2 cycles or BEP for 2 cycles

pN1
- Compliant
- or Noncompliant
  - Surveillance
  - or Chemotherapy: EP for 2 cycles or BEP for 2 cycles

pN2
- Compliant
- or Noncompliant
  - Surveillance
  - or Chemotherapy (preferred): EP for 2 cycles or BEP for 2 cycles

pN3
- Chemotherapy as in good-risk disease: EP for 4 cycles or BEP for 3 cycles (preferred)

Follow-up for Nonseminoma (see TEST-11)

Note: All recommendations are category 2A unless otherwise indicated. Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

See Risk Classification (TEST-A), See Primary Chemotherapy Regimens for Metastatic Germ Cell Tumors (TEST-B).
The EP and BEP chemotherapy regimens have shown survival advantage in randomized clinical trials and may be considered as category 1 compared with other chemotherapy regimens.

\[ g \text{ See Risk Classification (TEST-A).} \]

\[ l \text{Surgery is recommended within 4 weeks of CT scan and 7-10 days of markers (category 2B).} \]

\[ k \text{ See Primary Chemotherapy Regimens for Metastatic Germ Cell Tumors (TEST-B).} \]

\[ j \text{Patients should receive adequate treatment for brain metastases, in addition to cisplatin-based chemotherapy.} \]

\[ m \text{There is limited predictive value for PET scan for residual masses.} \]

Note: All recommendations are category 2A unless otherwise indicated. Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.
FOLLOW-UP FOR NONSEMINOMA

Surveillance for Stage IA, IB for Testicular Cancer

<table>
<thead>
<tr>
<th>Year</th>
<th>Months between visits, markers, chest x-ray</th>
<th>Months between abdominal/pelvic CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-2</td>
<td>2-3</td>
</tr>
<tr>
<td>2</td>
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<td>3-4</td>
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<td>4</td>
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<td>6</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>6+</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

Surveillance After Complete Response to Chemotherapy and/or RPLND

<table>
<thead>
<tr>
<th>Year</th>
<th>Months between visits, markers, chest x-ray (category 2B for chest x-ray frequency)</th>
<th>Months between abdominal/pelvic CT^n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2-3</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>2-3</td>
<td>6-12</td>
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<tr>
<td>3</td>
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<td>12</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>6+</td>
<td>12</td>
<td>12-24</td>
</tr>
</tbody>
</table>

Recurrence, See Salvage Therapy (TEST-12)

nCT scans apply only to patients treated with chemotherapy. Patients status post RPLND, a postoperative baseline CT scan is recommended.

Note: All recommendations are category 2A unless otherwise indicated.

Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.
**RECURRENTCE**

**SALVAGE THERAPY**

**Favorable prognosis:**
- Low markers
- Low volume
- Complete response on first-line therapy
- Testis primary

→ VeIP or TIP

**Incomplete response or relapse**

**Incomplete response or relapse**

→ VeIP or TIP

**Chemotherapy**
- High-dose chemotherapy (preferred) or
- Clinical trial
- Surgical salvage should be considered if solitary site
- Best supportive care

**Relapse**

→ Follow-up

**Complete response**

→ Follow-up

**Unfavorable prognosis:**
- Incomplete response
- High markers
- High volume
- Extratesticular primary
- Late relapse

→ VeIP or TIP

**Chemotherapy**
- High-dose chemotherapy (category 2B) or
- Clinical trial (preferred) or
- Conventional therapy (VeIP or TIP)
- Surgical salvage should be considered if solitary site
- Best supportive care

**No prior chemotherapy**

→ Treat as per risk status on TEST-10

**VeIP = Vinblastine/ifosfamide/cisplatin**
**TIP = Paclitaxel/ifosfamide/cisplatin**

*See Salvage Chemotherapy Regimens for Metastatic Germ Cell Tumors (TEST-C).*

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### RISK CLASSIFICATION

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Nonseminoma</th>
<th>Seminoma</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Good Risk</strong></td>
<td>Testicular or retroperitoneal primary tumor and No nonpulmonary visceral metastases and Good markers- all of: AFP &lt; 1,000 ng/mL hCG &lt; 5,000 iu/L LDH &lt; 1.5 x upper limit of normal</td>
<td>Any primary site and No nonpulmonary visceral metastases and Normal AFP Any HCG Any LDH</td>
</tr>
<tr>
<td><strong>Intermediate Risk</strong></td>
<td>Testicular or retroperitoneal primary tumor and No nonpulmonary visceral metastases and Intermediate markers- any of: AFP 1,000-10,000 ng/mL hCG 5,000-50,000 iu/L LDH 1.5-10 x upper limit of normal</td>
<td>Any primary site and Nonpulmonary visceral metastases and Normal AFP Any HCG Any LDH</td>
</tr>
<tr>
<td><strong>Poor Risk</strong></td>
<td>Mediastinal primary tumor or Nonpulmonary visceral metastases or Poor markers- any of: AFP &gt; 10,000 ng/mL hCG &gt; 50,000 iu/L LDH &gt; 10 x upper limit of normal</td>
<td>No patients classified as poor prognosis</td>
</tr>
</tbody>
</table>

### PRIMARY CHEMOTHERAPY REGIMENS FOR METASTATIC GERM CELL TUMORS

<table>
<thead>
<tr>
<th>Tumor status</th>
<th>Regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previously untreated, good risk</td>
<td>(EP) Etoposide, 100 mg/m² IV daily for 5 days, + cisplatin, 20 mg/m² IV daily for 5 days, for 4 cycles administered at 21-day intervals¹ or (BEP) Etoposide, 100 mg/m² IV daily for 5 days, cisplatin, 20 mg/m² IV daily for 5 days, + bleomycin, 30 units IV weekly on days 1, 8, 15* for 3 cycles administered at 21-day intervals²</td>
</tr>
<tr>
<td>Previously untreated, intermediate, or poor risk</td>
<td>(BEP) Etoposide, 100 mg/m² IV daily for 5 days, cisplatin, 20 mg/m² IV daily for 5 days, + bleomycin, 30 units IV weekly on days 1, 8, 15* for 4 cycles administered at 21-day intervals²</td>
</tr>
</tbody>
</table>

*Some NCCN Institutions administer bleomycin on a 2, 9, 16 schedule.


### Salvage Chemotherapy Regimens for Metastatic Germ Cell Tumors

<table>
<thead>
<tr>
<th>Tumor status</th>
<th>Regimen</th>
</tr>
</thead>
</table>
| Previously treated, salvage therapy | *(VeIP)* Vinblastine 0.11 mg/kg IV per day for 2 days, ifosfamide 1200 mg/m² IV daily for 5 days, mesna 400 mg/m² IV every 8 h x 5 days, and cisplatin 20 mg/m² IV daily for 5 days.  
or  
*(TIP)* Paclitaxel 250 mg/m² IV day 1, followed by ifosfamide 1500 mg/m² and cisplatin 25 mg/m² IV daily on days 2-5, mesna 500 mg/m² IV before, and then 4 and 8 h after each dose of ifosfamide. |


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## Staging

**Table 1**

**AJCC Staging of Testis Tumors**

**Primary Tumor (pT)**

The extent of primary tumor is usually classified after radical orchiectomy, and for this reason, a *pathologic* stage is assigned.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>pTX</em></td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>pT0</td>
<td>No evidence of primary tumor (e.g. histologic scar in testis)</td>
</tr>
<tr>
<td>pTis</td>
<td>Intratubular germ-cell neoplasia (carcinoma in situ)</td>
</tr>
<tr>
<td>pT1</td>
<td>Tumor limited to the testis and epididymis without vascular/lymphatic invasion; tumor may invade into the tunica albuginea but not the tunica vaginalis</td>
</tr>
<tr>
<td>pT2</td>
<td>Tumor limited to the testis and epididymis with vascular/lymphatic invasion, or tumor extending through the tunica albuginea with involvement of the tunica vaginalis</td>
</tr>
<tr>
<td>pT3</td>
<td>Tumor invades the spermatic cord with or without vascular/lymphatic invasion</td>
</tr>
<tr>
<td>pT4</td>
<td>Tumor invades the scrotum with or without vascular/lymphatic invasion</td>
</tr>
</tbody>
</table>

*Note: Except for pTis and pT4, extent of primary tumor is classified by radical orchiectomy. TX may be used for other categories in the absence of radical orchiectomy.*

**Regional Lymph Nodes (N)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>NX</em></td>
<td>Regional lymph nodes cannot be assessed</td>
</tr>
<tr>
<td>N0</td>
<td>No regional lymph node metastasis</td>
</tr>
<tr>
<td>N1</td>
<td>Metastasis with a lymph node mass 2 cm or less in greatest dimension; or multiple lymph nodes, none more than 2 cm in greatest dimension</td>
</tr>
<tr>
<td>N2</td>
<td>Metastasis with a lymph node mass, more than 2 cm but not more than 5 cm in greatest dimension; or multiple lymph nodes, any one mass greater than 2 cm but not more than 5 cm in greatest dimension</td>
</tr>
<tr>
<td>N3</td>
<td>Metastasis with a lymph node mass more than 5 cm in greatest dimension</td>
</tr>
</tbody>
</table>

**Pathologic (pN)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>pNX</em></td>
<td>Regional lymph nodes cannot be assessed</td>
</tr>
<tr>
<td>pN0</td>
<td>No regional lymph node metastasis</td>
</tr>
<tr>
<td>pN1</td>
<td>Metastasis with a lymph node mass, 2 cm or less in greatest dimension and less than or equal to 5 nodes positive, none more than 2 cm in greatest dimension</td>
</tr>
<tr>
<td>pN2</td>
<td>Metastasis with a lymph node mass more than 2 cm but not more than 5 cm in greatest dimension; or more than 5 nodes positive, none more than 5 cm; or evidence of extranodal extension of tumor</td>
</tr>
<tr>
<td>pN3</td>
<td>Metastasis with a lymph node mass more than 5 cm in greatest dimension</td>
</tr>
</tbody>
</table>

**Distant Metastasis (M)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>MX</em></td>
<td>Distant metastasis cannot be assessed</td>
</tr>
<tr>
<td>M0</td>
<td>No distant metastasis</td>
</tr>
<tr>
<td>M1</td>
<td>Distant metastasis</td>
</tr>
<tr>
<td>M1a</td>
<td>Non-regional nodal or pulmonary metastasis</td>
</tr>
<tr>
<td>M1b</td>
<td>Distant metastasis other than to non-regional lymph nodes and lungs</td>
</tr>
</tbody>
</table>

*Continued...*
# Serum Tumor Markers (S)

<table>
<thead>
<tr>
<th>Marker</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SX</td>
<td>Marker studies not available or not performed</td>
</tr>
<tr>
<td>SO</td>
<td>Marker study levels within normal limits</td>
</tr>
<tr>
<td>S1</td>
<td>LDH &lt; 1.5 x N AND hCG (mlu/mL) &lt; 5000 AND AFP (ng/ml) &lt; 1000</td>
</tr>
<tr>
<td>S2</td>
<td>LDH 1.5-10 x N OR hCG (mlu/mL) 5000-50,000 OR AFP (ng/ml) 1000-10,000</td>
</tr>
<tr>
<td>S3</td>
<td>LDH &gt; 10 x N OR hCG (mlu/mL) &gt; 50,000 OR AFP (ng/ml) &gt; 10,000</td>
</tr>
</tbody>
</table>

*N indicates the upper limit of normal for the LDH assay.

# Stage Grouping

<table>
<thead>
<tr>
<th>Stage</th>
<th>pT/Tx</th>
<th>pN</th>
<th>pM</th>
<th>SX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 0</td>
<td>pTis</td>
<td>N0</td>
<td>M0</td>
<td>S0</td>
</tr>
<tr>
<td>Stage I</td>
<td>pT1-4</td>
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<td>M0</td>
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<tr>
<td>Stage IA</td>
<td>pT1</td>
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<td>S0</td>
</tr>
<tr>
<td>Stage IB</td>
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<td>M0</td>
<td>S0</td>
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<tr>
<td>Stage IIA</td>
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<td>M0</td>
<td>S0</td>
</tr>
<tr>
<td>Stage IIB</td>
<td>Any pT/Tx</td>
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<td>M0</td>
<td>S0</td>
</tr>
<tr>
<td>Stage IIC</td>
<td>Any pT/Tx</td>
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<td>S0</td>
</tr>
<tr>
<td>Stage IS</td>
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<td>M0</td>
<td>S1-3</td>
</tr>
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<td>Stage II</td>
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<td>N1-3</td>
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<td>SX</td>
</tr>
<tr>
<td>Stage IIA</td>
<td>Any pT/Tx</td>
<td>N1</td>
<td>M0</td>
<td>S0</td>
</tr>
<tr>
<td>Stage IIB</td>
<td>Any pT/Tx</td>
<td>N2</td>
<td>M0</td>
<td>S0</td>
</tr>
<tr>
<td>Stage IIC</td>
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<td>M0</td>
<td>S0</td>
</tr>
<tr>
<td>Stage III</td>
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<td>M1</td>
<td>SX</td>
</tr>
<tr>
<td>Stage IIIA</td>
<td>Any pT/Tx</td>
<td>Any N</td>
<td>M1a</td>
<td>S0</td>
</tr>
<tr>
<td>Stage IIIB</td>
<td>Any pT/Tx</td>
<td>Any N</td>
<td>M1a</td>
<td>S1</td>
</tr>
<tr>
<td>Stage IIIC</td>
<td>Any pT/Tx</td>
<td>Any N</td>
<td>M1b</td>
<td>S2</td>
</tr>
<tr>
<td>Stage IV</td>
<td>Any pT/Tx</td>
<td>Any N</td>
<td>M1</td>
<td>S3</td>
</tr>
</tbody>
</table>

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Testicular Cancer

Overview

An estimated 8250 new cases of testicular cancer will be diagnosed in the United States in 2006.¹ Germ cell tumors (GCTs) comprise 95% of malignant tumors arising in the testes. These tumors also occur occasionally in extragonadal primary sites, but they are still managed the same as testicular GCTs. Although GCTs are relatively uncommon tumors that comprise only 2% of all human malignancies, they constitute the most common solid tumor in men between the ages of 15 and 34 years. In addition, the worldwide incidence of these tumors has more than doubled in the past 40 years.

Several risk factors for GCT development have been identified, including prior history of a GCT, positive family history, cryptorchidism, testicular dysgenesis, and Klinefelter’s syndrome. GCTs are classified as seminoma or nonseminoma. Nonseminomatous tumors often include multiple cell types, including embryonal cell carcinoma, choriocarcinoma, yolk sac tumor, and teratoma. Teratomas are considered to be either mature or immature depending on whether adult-type differential cell types or partial somatic differentiation, similar to that present in the fetus, is found. Rarely, a teratoma histologically resembles a somatic cancer, such as sarcoma or adenocarcinoma, and is then referred to as a teratoma with malignant transformation.

The serum tumor markers alpha-fetoprotein (AFP), lactate dehydrogenase (LDH), and human chorionic gonadotropin (hCG) are critical in diagnosing the presence of tumors, determining prognosis, and assessing treatment outcome. These should be determined before, during, and after treatment and throughout the follow-up period. AFP is a serum tumor marker produced by nonseminomatous cells (embryonal carcinoma, yolk-sac tumor) and may be seen at any stage. The approximate half-life of AFP is 5 to 7 days. A nonseminoma, therefore, is associated with elevated serum concentrations of AFP. An elevated serum concentration of hCG, which has a half-life of approximately 1–3 days, may also be present with seminomatous and nonseminomatous tumors. Seminomas are occasionally associated with an elevated serum concentration of hCG but not an elevated concentration of AFP.

Nonseminoma is the more clinically aggressive tumor. When both a seminoma and elements of a nonseminoma are present, management follows that for a nonseminoma. Therefore, the diagnosis of a seminoma is restricted to pure seminoma histology and a normal serum concentration of AFP.

NCCN Categories of Consensus

Category 1: There is uniform NCCN consensus, based on high-level evidence, that the recommendation is appropriate.

Category 2A: There is uniform NCCN consensus, based on lower-level evidence including clinical experience, that the recommendation is appropriate.

Category 2B: There is nonuniform NCCN consensus (but no major disagreement), based on lower-level evidence including clinical experience, that the recommendation is appropriate.

Category 3: There is major NCCN disagreement that the recommendation is appropriate.

All recommendations are category 2A unless otherwise noted.
More than 90% of patients diagnosed with GCTs are cured, including 70% to 80% of patients with advanced tumors who are treated with chemotherapy. A delay in diagnosis correlates with a higher stage at presentation. Standard therapy has been established at essentially all stages of management and must be closely followed to ensure the potential for cure.

**Clinical Presentation**

A painless solid testicular mass is pathognomonic for testicular tumor. More often, patients present with testicular discomfort or swelling suggestive of epididymitis or orchitis. A trial of antibiotics may be given in this circumstance, but persistent tenderness, swelling, or any palpable abnormality warrants further evaluation using testicular ultrasound. Although testicular ultrasound is optional if the diagnosis is obvious from the physical examination, it is performed in most instances to define the lesion (TEST-1).

If an intratesticular mass is identified, further evaluation includes measurement of the serum concentrations of AFP, LDH, and beta-hCG and a chest radiograph. Elevated values of beta-hCG, LDH, or AFP should be followed up with repeated tests to allow precise staging. Inguinal orchiectomy is considered the primary treatment for most patients who present with a suspicious testicular mass.² If a GCT is found, an abdominopelvic computed tomographic (CT) scan is performed. Serum concentrations of hCG and LDH may be elevated in patients with seminoma. An elevated AFP level indicates nonseminoma, and the patient should be managed accordingly. A chest CT may be indicated if the abdominopelvic CT shows retroperitoneal adenopathy or the chest radiograph shows abnormal results. An open inguinal biopsy of the contralateral testis is not routinely performed, but can be considered when a cryptorchid testis or marked atrophy is present.³ Biopsy may also be considered if a suspicious intratesticular abnormality, such as a hypoechoic mass or macrocalcifications, is identified on ultrasound. In contrast, if microcalcifications without any other abnormality can be observed, testicular biopsy is not necessary. These studies, and others as clinically indicated, determine the clinical stage and direct patient management. If clinical signs of metastases are present, magnetic resonance imaging (MRI) of the brain and bone scanning are indicated. (TEST-2,5)

Further management is dictated by histology, a diagnosis of seminoma or nonseminoma, and stage. (ST-1) Patients should attempt sperm banking before undergoing any therapeutic intervention that may compromise fertility, including radiation therapy, surgery, and chemotherapy.

**Seminoma**

The risk classification for seminoma is defined in TEST-A.

**Stages IA, IB, and IS**

Patients with disease in stages IA, IB, and IS are treated with radiation (20–30 Gy) to the infradiaphragmatic area, including para-aortic lymph nodes with or without radiation to the ipsilateral ileoinguinal nodes.⁴ Prophylaxis to the mediastinum is not provided, because relapse rarely occurs at this site. A single dose of carboplatin has also been investigated as an alternative to radiation therapy (category 3 recommendation). Oliver et al.⁵ reported on the results of a trial that randomized 1477 patients with stage I testicular cancer to undergo
either radiotherapy or one injection of carboplatin. With a median follow-up of 4 years, the relapse-free survivals for both groups were similar, and the authors concluded that a single dose of carboplatin was noninferior to radiation therapy.

Between 15% and 20% of patients with seminoma experience relapse during surveillance if they do not undergo adjuvant radiation therapy after orchiectomy. The median time to relapse is approximately 12 months, but relapses can occur more than 5 years after orchiectomy. Because the morbidity of radiation in this setting is low, surveillance for stage I seminoma is generally not recommended in the United States, except for patients at higher risk for morbidity from radiation therapy. These patients include those with a horseshoe or pelvic kidney, with inflammatory bowel disease, and who underwent prior radiation therapy. Additionally, observation may be offered to selected patients with T1 or T2 disease (category 2B) who are committed to long-term follow-up. Relapse occurring after observation essentially represents a prolongation in the lead time of treatment. Therefore, these patients are treated according to the stage at relapse.

Annual pelvic CT is recommended for 3 years for patients who underwent para-aortic RT, whereas an annual abdominal/pelvic CT scan is recommended for those treated with a single dose of carboplatin or observation. A history and physical, with measurement of serum tumor markers, should be performed every 3 to 4 months for 1 year, with more intense follow-up for patients not undergoing radiation therapy.

Stages IIA and IIB
Stage IIA is defined as disease measuring less than 2 cm in diameter on CT scan, and stage IIB as disease measuring 2 to 5 cm in maximum diameter. For patients with stage IIA or IIB disease, 35 to 40 Gy is administered to the infradiaphragmatic area, including para-aortic and ipsilateral iliac lymph nodes. As in the management of stage I disease, prophylactic mediastinal radiation therapy is not indicated. Surveillance is not an option for patients with stage IIA or IIB disease with relative contraindications for radiation. Instead, 4 courses of etoposide and cisplatin (EP) are recommended. Follow-up for patients with stage IIA or IIB disease is similar to that for patients with stage I disease, with details provided on (TEST-3).

Stages IIC and III
Patients with stage IIC or III disease are those considered at good or intermediate risk. All stage IIC and stage III disease is considered good risk except for stage III disease with nonpulmonary visceral metastases, which is considered intermediate risk. Standard chemotherapy is used for both groups of patients, but for patients with good risk, either 4 cycles of EP are recommended or 3 cycles of bleomycin, etoposide, and cisplatin (BEP). In contrast, 4 cycles of BEP are recommended for those with intermediate risk disease. These options are all considered category 1 recommendations.

After initial chemotherapy, patients with stage IIC and III are evaluated with serum tumor markers and a CT scan of the chest abdomen and pelvis. Patients are then classified according to the presence or absence of a residual mass and the status of serum tumor markers.
Patients with no residual mass and normal markers need no further treatment and undergo surveillance. In patients with a residual mass with normal markers, a positron emission tomography (PET) scan is recommended to assess for residual viable tumor. To reduce the incidence of false-positive results, the PET scan is typically performed no less than 6 weeks after completion of chemotherapy. Notably, granulomatous disease, such as sarcoid, is a frequent source of false-positive results. If the PET scan is negative, no further treatment is needed. If it is positive, then biopsy should be considered followed by surgical excision or salvage therapy. Alternatively, the patient can be treated with radiation therapy (category 2B).

For patients who cannot undergo a PET scan, postchemotherapy management is based on CT scan findings. Controversy exists regarding optimal management when the residual mass is greater than 3 cm, because approximately 25% of these patients have a viable seminoma or previously unrecognized nonseminoma. Options include surgery, radiation therapy (category 2B), and observation. If surgery is selected, the procedure consists of resection of the residual mass or multiple biopsies. A full bilateral or modified retroperitoneal lymph node dissection (RPLND) is not performed because of its technical difficulty in patients with seminoma and because of extensive fibrosis, which may be associated with severe morbidity. If the residual mass is 3 cm or less, patients should undergo observation, which is detailed in TEST-4.

Recurrent disease is initially treated according to the stage at recurrence. Salvage therapy is recommended for patients with rising markers or a growing mass detected on CT scan. Salvage therapy for seminoma and nonseminoma is similar and is discussed further in section on nonseminomas.

Patients with seminoma arising from an extragonadal site, such as the mediastinum, are treated with standard chemotherapy regimens according to risk status.

Approximately 90% of patients with advanced seminoma are cured with cisplatin-containing chemotherapy.

Nonseminoma

The risk classification for nonseminoma is defined in TEST-A. Stage-dependent treatment options after inguinal orchiectomy include observation, chemotherapy, and RPLND. Although the timing of the RPLND may vary, most patients with nonseminoma will undergo an RPLND for either diagnostic or therapeutic purposes at some point during treatment. The major morbidity associated with bilateral dissection is retrograde ejaculation, resulting in infertility. Nerve-dissection techniques preserve antegrade ejaculation in 90% of cases.

Template dissections, which avoid the contralateral sympathetic chain, postganglionic sympathetic fibers, and hypogastric plexus, preserve ejaculation in approximately 80% of patients. In general, an open nerve-sparing RPLND rather than a laparoscopic RPLND is recommended for therapeutic purposes. For example, a concern exists that a laparoscopic RPLND may result in false-negative results caused by inadequate sampling, and no published reports focus on the therapeutic efficacy of a laparoscopic dissection. Because the recommended number of cycles of chemotherapy is based on the
number of positive nodes identified, inadequate sampling may lead to partial treatment.17

Stage IA
Two management options exist for patients with stage IA disease after orchiectomy: (1) surveillance (in compliant patients) or (2) open nerve-sparing RPLND. (TEST-6)

The cure rate with either approach exceeds 95%. However, the high cure rate associated with surveillance depends on adherence to periodic follow-up examinations and subsequent chemotherapy for the 20% to 30% of patients who experience relapse. The follow-up examinations in those electing surveillance include an abdominopelvic CT scan every 2 to 3 months for the first year and every 3 to 4 months during the second year. Serum marker determination and the chest radiograph should be performed every 1 to 2 months during the first year and every 2 months during the second year. (TEST-11) Noncompliant patients are treated with open RPLND.

The open RPLND is typically performed within 4 weeks of a CT scan and within 7 to 10 days of repeat serum marker testing to ensure accurate presurgical staging. If the dissected lymph nodes are not involved with a tumor (pN0), no adjuvant chemotherapy is given after RPLND. However, if the resected lymph nodes involve tumor, the decision whether to use adjuvant chemotherapy is based on the degree of nodal involvement and the ability of the patient to comply with surveillance. (TEST-9) Chemotherapy is preferred over surveillance in patients with pN2 or pN3 disease. Recommended regimens include either EP or BEP; 2 cycles of either regimen are recommended for patients with pN1 or pN2 disease, with 4 cycles of EP and 3 cycles of BEP (preferred) for patients with pN3 disease.

Stage IB
Open RPLND is a treatment option in patients with stage IB disease and the subsequent adjuvant therapy options are similar to those for stage IA. Chemotherapy with 2 cycles of BEP (category 2B) followed by open RPLND or surveillance is another option. (TEST-8) Finally, surveillance alone may be offered to compliant patients with T2 disease (category 2B). (TEST-6) Vascular invasion is a significant predictor of relapse when orchiectomy is followed by surveillance alone.2 Surveillance is generally not recommended for T2 disease with vascular invasion because of the 50% chance of relapse. Exceptions are made according to individual circumstances in compliant patients.

Stage IS
Patients with stage IS disease exhibit a persistent elevation of markers but no radiographic evidence of disease. These patients are treated with standard chemotherapy with either 4 cycles of EP or 3 cycles of BEP. (TEST-6) Either regimen is preferable to initial RPLND because these patients nearly always have disseminated disease.18,19

Stages IIA and IIB (TEST-7)
Treatment for patients with stage IIA nonseminoma depends on serum tumor marker levels. When the levels of tumor markers are persistently elevated, patients are treated with chemotherapy with 4 cycles of EP or 3 cycles of BEP, followed by open RPLND or surveillance. (TEST-8)

When the tumor marker levels are negative, 2 treatment options are available. Patients can undergo primary chemotherapy with EP or BEP
(category 2B), followed by open RPLND or surveillance (TEST-8). This treatment is considered particularly appropriate if the patient has multifocal disease. Alternatively, the patient can undergo open RPLND followed by adjuvant chemotherapy or surveillance, depending on the number of positive lymph nodes identified and patient compliance. (TEST-9) For example, surveillance is preferred in compliant patients with pN1 disease, whereas chemotherapy is preferred for pN2 disease and surveillance is not recommended for pN3 disease. Recommended chemotherapy consists of 2 cycles of BEP or EP, resulting in a nearly 100% relapse-free survival rate.21

Treatment for patients with stage IIB disease depends on both tumor marker levels and radiographic findings. (TEST-7) When tumor markers are negative, the CT findings determine the proper course of treatment. If abnormal radiographic findings are limited to sites within the lymphatic drainage (i.e., the landing zone), 2 management options are available. One option is to perform open RPLND and to consider adjuvant chemotherapy as described for patients with stage II A disease. (TEST-9) The second option is to treat with primary chemotherapy with either 4 cycles of EP or 3 cycles of BEP, followed by open RPLND or surveillance. (TEST-8) If the radiographic findings are not confined to the lymphatic drainage (i.e., multifocal lymph node metastases outside the lymphatic drainage sites), similar primary chemotherapy is recommended and initial open RPLND is not.

Chemotherapy for Stages IIC and III
Patients with stage IIC and stage III disease are treated with primary chemotherapy regimens based on risk status. (TEST-A) Also, patients with an extragonadal primary site, whether retroperitoneal or mediastinal, are treated with initial chemotherapy. Classifications of risk status emerged from chemotherapy research designed to decrease the toxicity of the regimens while maintaining maximal efficacy.

Initial chemotherapy combinations studied in the 1970s contained cisplatin, vinblastine, and bleomycin and achieved a complete response in 70% to 80% of patients with metastatic GCTs. These regimens were associated with serious adverse effects, including neuromuscular toxic effects, death from myelosuppression or bleomycin-induced pulmonary fibrosis, and Raynaud’s phenomenon.

The high cure rate and toxicity associated with cisplatin, vinblastine, and bleomycin regimens resulted in efforts to stratify patients and tailor therapy according to risk. Extent of disease and serum tumor markers were identified as important prognostic features, and models were developed to stratify patients into good- and poor-risk categories.

The International Germ Cell Cancer Consensus Classification was developed and incorporated the risk groups into the American Joint Committee on Cancer staging for GCTs (ST-1). This classification categorized patients as good-, intermediate-, or poor-risk.22

Patients with Good-Risk (Stages IIC and IIIA) Nonseminoma
Treatment programs for good-risk GCTs were designed to decrease toxicity while maintaining maximal efficacy. Randomized clinical trials showed that this was achieved by substituting etoposide for vinblastine,23,24 and either eliminating or reducing the dose of bleomycin.24,25 Presently, 2 regimens are considered standard treatment programs in the United States for good-risk GCTs: 4 cycles of
EP or 3 cycles of BEP. (TEST-B) Either regimen is well tolerated and cures approximately 90% of patients with good risk.26

Patients with Intermediate- (Stage IIIB) and Poor-Risk (Stage IIIC) Nonseminoma (TEST-10)
Between 20% and 30% of all patients with metastatic GCTs are not cured with conventional cisplatin therapy. Poor prognostic features at diagnosis that can be used to identify these patients include nonpulmonary visceral metastases and high serum tumor marker concentrations or mediastinal primary site in patients with nonseminoma.27 In patients with these prognostic factors, clinical trials are directed at improving efficacy.

For patients with intermediate risk, the cure rate is approximately 70% for standard therapy with 4 cycles of BEP. In patients with poor-risk GCTs (stage IIIC), less than one half experience a durable complete response to 4 cycles of BEP, and therefore treatment in a clinical trial is preferred.27

Primary chemotherapy plus radiotherapy is indicated for patients in whom brain metastases are detected. If clinically indicated, surgery should also be performed.

Postchemotherapy Management for Stages IIC and IIIA–IIIC Nonseminoma (TEST-10)
At the conclusion of induction chemotherapy, CT scans of the abdomen and pelvis are indicated, along with serum tumor marker assays. PET scans for residual disease have limited predictive value. If a complete response is found and the tumor markers are negative, 2 management options exist: surveillance (category 2B) or an open RPLND (category 2B).

If residual disease is found and the serum tumor markers have normalized, then all sites of residual disease are resected. If only necrotic debris or mature teratoma is encountered, no further therapy is necessary and standard observation is initiated. In the 15% of patients who have viable residual cancer, 2 cycles of chemotherapy (EP, VeIP [paclitaxel/ifosfamide/cisplatin], or TIP [vinblastine/ifosfamide/cisplatin]) are administered.

After patients are rendered disease-free, standard observation is initiated. (TEST-11) Patients who experience an incomplete response to first-line therapy or unresectable disease at surgery are treated with salvage therapy. (TEST-12)

Salvage Therapy
Patients who do not experience a complete response to first-line therapy are divided into those with a favorable or unfavorable prognosis. (TEST-12) Favorable prognostic factors include a testicular primary site, prior complete response to first-line therapy, low levels of serum markers, and low-volume disease.26 Standard therapy for patients with these features is 4 cycles of cisplatin and ifosfamide combined with vinblastine or paclitaxel. (TEST-C) Approximately 50% of patients treated with the vinblastine regimen experience a complete response, and 25% experience durable complete remission.29,30 If the patient experiences an incomplete response or relapses after salvage chemotherapy, high-dose chemotherapy with autologous stem cell support is the preferred option. Surgical salvage should be considered.
if a single site of metastasis is present and resectable. Best supportive care is also an option.

Patients with unfavorable prognostic features for conventional-dose salvage therapy (e.g., an incomplete response to first-line therapy) and patients requiring third-line salvage therapy are considered for treatment with high-dose chemotherapy plus autologous stem cell support (category 2B), participation in a clinical trial, or best supportive care. Third-line therapy with 2 cycles of high-dose carboplatin plus etoposide, with or without cyclophosphamide (or ifosfamide), results in a durable complete response in 15% to 20% of patients.\textsuperscript{31}

For patients being considered for treatment with a high-dose program, prognostic factors are used in deciding treatment. Patients with a testicular primary site and rising markers during first-line therapy are considered for high-dose programs as second-line therapy. Predictors of poor outcome to high-dose carboplatin-containing chemotherapy include a high serum hCG concentration, mediastinal primary site, and insensitivity to cisplatin (absolute refractory disease).\textsuperscript{32} Patients with these features are generally spared the morbidity of this therapy and are considered for investigational therapy or surgical resection—particularly patients with a mediastinal primary or single site of metastasis.

For patients who do not experience complete response to high-dose therapy, the disease is nearly always incurable; the only exception is the rare patient with elevated serum tumor markers and a solitary site of metastasis (usually retroperitoneal) who undergoes surgical resection.\textsuperscript{33} All other patients should be considered for palliative outpatient chemotherapy or radiation therapy.

**Disclosures for the NCCN Testicular Cancer Guidelines Panel**

At the beginning of each panel meeting to develop NCCN guidelines, panel members disclosed the names of companies, foundations, and/or funding agencies from which they received research support; for which they participate in speakers’ bureau, advisory boards; and/or in which they have equity interest or patents. Members of the panel indicated that they have received support from the following: Bayer, Boehringer Ingelheim, Bristol-Myers Squibb, Chiron Corporation, Genentech, Merck & Co., Pfizer, Sanofi-Aventis, Onyx Pharmaceuticals, Schering Plough, and Wyeth.

Some panel members do not accept any support from industry. The panel did not regard any potential conflicts of interest as sufficient reason to disallow participation in panel deliberations by any member.
References


Recommended Reading:
