Radiation Therapy in Cervical Cancer

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ATTITUDES

- \( \leq \) IIA: SURGERY = RADIOTHERAPY
- \( > \) IIA: RADIOTHERAPY + CHEMOTHERAPY
RT & CERVIX UTERI CANCER

- POST-OPERATIVE (< STAGE IIA)

- INDICATIONS: INVOLVED NODES, POSITIVE MARGINS, DIAMETER > 4-5 CM

- RELATIVELY LOW DOSES TO THE PELVIS, 45 – 50 GY, => GOOD TOLERANCE

- OVARY PRESERVATION

- SEXUAL LIFE PRESERVATION

- WHEN POSITIVE NODES => + CT
RT & CERVICAL CANCER

- EXCLUSIVE (STAGE > IIA OR CHOICE)
- ASSOCIATION OF EXT RT & BRACHYTHERAPY (45 + 30-40 GY)
- COMBINED WITH CHEMOTHERAPY = BETTER RESULTS
- HIGH DOSES RT + CT=> FROZEN PELVIS (COMPROMISED SEXUAL LIFE)
IMPORTANT ISSUES

- HB > 12
- TUMOR DOSES > 75 – 80 GY (ST III = 85 GY)
- TREATMENT DURATION ≤ 40 – 50 D
- COVERAGE OF THE TUMOR (MR, CT)
- NODES: INGUINAL IF VAGINA INVOLVED
- PARA-AORT. 10 => 40 % FROM IIA => IV
- BETTER TOLERANCE IF RT LOW DOSE + BRACHY HIGHER DOSE
- RT + CT: IMPROVED OS AND PFS
## 5 RANDOMIZED STUDIES

<table>
<thead>
<tr>
<th>Trial</th>
<th>Patient no.</th>
<th>Tumor stage</th>
<th>Surgical staging</th>
<th>Control arm</th>
<th>Invest. arm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keys</td>
<td>369</td>
<td>IB &gt;4cm</td>
<td>PREOP RT</td>
<td>RT</td>
<td>+ CDDP</td>
</tr>
<tr>
<td>Whitney</td>
<td>368</td>
<td>IIB, III, IVA</td>
<td>yes</td>
<td>RT &amp; HU</td>
<td>+ CDDP &amp; 5FU</td>
</tr>
<tr>
<td>Rose</td>
<td>526</td>
<td>Idem</td>
<td>yes</td>
<td>RT &amp; HU</td>
<td>+ CDDP &amp; 5FU</td>
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<tr>
<td>Morris</td>
<td>386</td>
<td>Id &amp; IB, IIA ≥5 cm, + nodes</td>
<td>yes</td>
<td>RT PELV &amp; LOMB.</td>
<td>+ CDDP &amp; 5FU</td>
</tr>
<tr>
<td>Peters</td>
<td>243</td>
<td>IA2, IB, IIA + nodes, margins parametria</td>
<td>Post-op RT</td>
<td>RT</td>
<td>+ CDDP &amp; 5FU</td>
</tr>
</tbody>
</table>
Randomized trials RT-CT

<table>
<thead>
<tr>
<th>RESULTS</th>
<th>Median FU</th>
<th>Os % Control</th>
<th>OS % Invest</th>
<th>PFS % Control</th>
<th>PFS % Invest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keys</td>
<td>36 m</td>
<td>63</td>
<td>79</td>
<td>74</td>
<td>85</td>
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<tr>
<td>Whitney</td>
<td>8.7 Y</td>
<td>47</td>
<td>57</td>
<td>43</td>
<td>55</td>
</tr>
<tr>
<td>Rose</td>
<td>35 m</td>
<td>47</td>
<td>67</td>
<td>50</td>
<td>66</td>
</tr>
<tr>
<td>Morris</td>
<td>43 m</td>
<td>40</td>
<td>67</td>
<td>58</td>
<td>73</td>
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<tr>
<td>Peters</td>
<td>42 m</td>
<td>63</td>
<td>80</td>
<td>71</td>
<td>81</td>
</tr>
</tbody>
</table>
VIRTUAL SIMULATION
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SIMULATION - DOSIMETRY
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- Slice Max: 63.3 Gy
- Max: 63.1 Gy
- Min: 60.8 Gy
- Mean: 61.9 Gy

[Image of a simulation with dose contours and a dosimeter]
AFTER LOADER, WITH 192 Ir
CERVICAL APPLICATORS
GYNECOLOGICAL APPLICATOR
NEEDLES THROUGH A TEMPLATE
BRACHYTHERAPY UNDER MR
MR - BRACHYTHERAPY
MR - BRACHYTHERAPY
MR - BRACHYTHERAPY
BRACHYTHERAPY DOSIMETRY
CONCLUSIONS

- ≤ IIA: SURGERY OR RT (=)
- > IIA: RT
- ! SURGERY (+ RT – CT) = SOFTER PELVIS (SEXUAL LIFE)
- RT: COMBINED WITH CT
- EXTERNAL RT: BETTER WITH CT OR MR SIMULATION
- BRACHYTHERAPY: BETTER IF IMAGE GUIDED
- EXT RT: LINEAR ACCELERATORS
- BRACHYTHERAPY: REMOTE AFTERLOADERS => OPTIMIZATION OF THE DOSIMETRY
- GLOBAL IMAGE GUIDED THERAPY => BETTER RESULTS