The purpose of this study is to evaluate the impact of neoadjuvant & concurrent MAB for intermediate & high risk prostate cancer patients.
Materials and Methods: Between Sep 2000 and Sep 2007, 163 localized prostate carcinomas (T1-T3, N0M0) were treated with neoadjuvant (3−6 months) and concurrent (2months) hormonal therapy. Maximum androgen blockade (MAB) was used as hormonal therapy. There were 101 high risk and 62 intermediate risk group patients. Initial PSA level was ranging 4.0−246 ng/ml (median: 26.5 ng/ml) and Gleason score was ranging 4−10 (median: 7). IMRT was delivered with SMLC-IMRT technique using a 2 Gy/fraction to a total dose of 76 Gy. GTV was defined as prostate and CTV was defined as GTV+ seminal vesicles. PTV margin 7 mm around the CTV except for posterior direction. Posterior margin was 5−6 mm. We used 3-gold markers for localization. After radiation therapy, no further hormonal therapy was used until PSA failure. The PSA failure definition was done according to Phoenix criteria. The follow-up interval was every 3months. We evaluate the PSA failure free (PFF) survival rate, Overall survival rate (OS) and acute and late sequelae by NCI/CTV (version 3.0).
Results: The PFF at 5years of intermediate and high risk group were 100%, 92.3%, respectively. The OS at 5 years of each group were 100%, 95.4%, respectively. The cause of death was another cancer (lung, esophagus, stomach). Acute Grade 1−2 urogenital and gastrointesitinal sequelae was observed in 70%, 5.2%, respectively. No grade 3 acute sequelae was observed. Late Grade 1 urogenital and gastrointestinal sequelae were observed in 11%, 3.3%, respectively. Grade 3 urethral stricture was observed in 2 patients. All of them recovered after bougie. No grade 2 or higher rectal complication was observed.
Conclusion: In Japan, according to our 5 year results of short course (5−9 months) neoadjuvant and concurrent MAB with 76 Gy irradiation would be effective for intermediate & high risk prostate cancer patients at 5 years. Longer follow-up might be necessary.

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The effects of high-dose-rate brachytherapy combined with external beam radiation therapy in patients with prostate cancer

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Purpose: To determine the effects of high dose rate brachytherapy (HDR-BT) combined with external beam radiation therapy (EBRT), and to evaluate the early and late sequelae.
Patients and Methods: From April 2002 to December 2008, 92 patients with prostate cancer were treated with HDR-BT combined with EBRT. Patients were stratified into three groups: low-risk [20 patients (pts.)](GS: 2−6, PSA $\leqslant$ 10, T1c-T2a), intermediate-risk [24 pts.] (GS: 7, PSA 10−20, T2b-T2c), and high-risk [48 pts.] (GS: 8−10, PSA$\geqslant$20, T3). In all patients EBRT was performed before HDR-BT. Patients in low-risk group, intermediate-risk, and high-risk group were delivered 40 Gy/20 fractions/4 weeks, 46 Gy/23 fractions/4.6 weeks, and 50.4 Gy/28 fractions/5.6 weeks respectively, using a four field technique with a 10 MV photon beam. One to six days after the completion of EBRT, HDR-BT was performed with 18−19.5 Gy/3 fractions/2 days. Clinical Target Volume (CTV) was determined 3−5mm outside the periphery of the prostate. Proximal part of the seminal vesicle was also included in the CTV in patients with T3. More than 95% of the prescription dose was delivered to the CTV.
Results: The median follow-up was 43 months. Biochemical failure (PSA failure) according to the Phoenix definition (nadir + 2 ng/ml) was 0 (0%), 2 (8.3%), and 4 (8.3%) in low-, intermediate- and high-risk group, respectively. Overall survival rate was 96.7% and cause specific survival rate was 100%. Early sequelae were evaluated according to the Common Toxicity Criteria (CTC)-ver 3.0. Early genitourinary toxicity of grade 1, grade 2, and grade 3 was observed in eight, two and one patient, respectively. All the patients recovered from early toxicity within 12 months. Only one patient who had been previously undertaken TURP suffered from late toxicity (urinary tract stricture), and the patient had urinary tract dilatation. There was no early and late rectal damage.
Conclusions: HDR-BT combined with EBRT is also applicable to intermediate- and high-risk group patients in addition to low-risk group patients with prostate cancer. Biochemical failure and early and late sequelae were acceptable. Especially, HDR-BT had the advantage of avoiding rectal toxicity.

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Five-year results of disease control and quality of life analysis of a combined hypofractionated radiation and hormone therapy regimen for intermediate-risk prostate cancer

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Background: The aim of this analysis is to evaluate the chronic toxicity, efficacy and quality of life associated with a treatment of hypofractionated radiation combined with a short course of hormone therapy for intermediate-risk prostate cancer in a phase II trial.
Materials and Methods: Forty two patients with intermediate-risk prostate cancer were recruited. Patients received neoadjuvant and concomitant hormonal therapy consisting of a single injection of an LHRH agonist together with an oral non-steroidal anti-androgen medication for the first month. The radiation regimen of 57 Gy in 19 fractions over 4 weeks started 8 weeks after the injection. Toxicities were graded according to the National Cancer Institute Common Toxicity Criteria version 2.0 toxicity scale. Quality of life was assessed yearly from the second year onward using a French version of the Expanded Prostate Cancer Index Composite (EPIC) questionnaire.
Results: The 60-month biochemical progression free survival obtained by Kaplan-Meier analysis was 80.5%. No grade 3 or more toxicity was reported. Grade 1 and 2 urinary and gastro-intestinal toxicities were each present in 10% of cases. Erectile dysfunction was present in 76% of patients; however, the problem was present before initiation of therapy in 41% of them. Other hormonal/sexual toxicities were reported by 10% of patients. At a median follow-up of 72 months the mean scores for all domain summaries of the EPIC questionnaire were excellent, above 95, except for the sexual summary score which was 33.2. Of the patients who had a normal level of testosterone at the start of the study, 40% did not recover a normal level of testosterone at a median follow-up of 72 months.
Conclusions: Hypofractionated radiotherapy associated with a short course of hormonal therapy is a well tolerated and effective treatment for intermediate-risk prostate cancer. Moreover, this approach allows for an excellent long term quality of life, except for the presence of erectile dysfunction. Upcoming phase III trials will enlighten us further on the treatment of choice for these patients.

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IORT and radical prostatectomy for high-risk prostate cancer: a feasibility study

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Background: To explore the feasibility of intra-operative radiotherapy (IORT) in patients affected by high-risk prostate cancer and candidates for radical prostatectomy.
Material and Methods: Thirty eight patients with locally advanced prostate cancer were enrolled. No patients had evidence of lymph node or distant metastases, probability of organ-confined disease >25%, and risk of lymph node involvement >15% according to the Memorial Sloan Kettering Cancer Center Nomogram. IORT was delivered after exposure of the prostate by a dedicated linear accelerator with beveled collimators using electrons of 9−12 MeV to a total dose of 10−12 Gy. Rectal dose was measured *in vivo* by radio-chromic films placed on a rectal probe. IORT was followed by completion of radical prostatectomy and regional lymph node dissection. All cases with extracapsular extension and/or positive margins were scheduled for postoperative radiotherapy. Patients with pT3−4 disease or positive nodes received adjuvant hormone therapy.
Results: Mean dose detected by radio-chromic films was 3.9 Gy (range 0.4−8.9 Gy) to the anterior rectal wall. IORT procedure lasted 31 minutes on average (range 15−45 minutes). No major intra- or post-operative complications occurred. Minor complications were observed in 10/33 (30%) of cases. In the 27/31 patients who completed the postoperative external beam radiotherapy, 3/27 experienced grade 2 rectal and 1/27 grade 2 urinary toxicity.
Conclusions: IORT during radical prostatectomy is a feasible procedure and allowed to safely deliver postoperative external beam radiotherapy to a total dose of 50 Gy to the tumor bed without relevant acute rectal toxicity.