ONCOLOGY UPDATES

1. DIAGNOSING PROSTATE CANCER WITH MR/ULTRASOUND FUSION–GUIDED BIOPSY VS ULTRASOUND-GUIDED BIOPSY

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TAKE-HOME MESSAGE

- In this prospective cohort study, 1003 men underwent both targeted magnetic resonance (MR)/ultrasound–fusion prostate biopsy and standard extended-sextant biopsy between 2007 and 2014. Exact agreement between targeted and standard biopsy was found in 690 men (69%), while targeted biopsy diagnosed 30% more high-risk cancers than standard biopsy but 17% fewer low-risk cases ($P < .001$ for each). Targeted biopsy also had greater predictive ability for differentiating low-risk from intermediate- and high-risk disease ($P < .05$).
- When compared with standard biopsy, targeted MR/ultrasound–fusion biopsy had increased detection of high-risk prostate cancer but decreased detection of low-risk prostate cancer, and further studies will be necessary to determine the clinical implications.

ABSTRACT

IMPORTANCE

Targeted magnetic resonance (MR)/ultrasound fusion prostate biopsy has been shown to detect prostate cancer. The implications of targeted biopsy alone vs standard extended-sextant biopsy or the 2 modalities combined are not well understood.

OBJECTIVE

To assess targeted vs standard biopsy and the 2 approaches combined for the diagnosis of intermediate- to high-risk prostate cancer.

DESIGN, SETTING AND PARTICIPANTS

Prospective cohort study of 1003 men undergoing both targeted and standard biopsy concurrently from 2007 through 2014 at the National Cancer Institute in the United States. Patients were referred for elevated level of prostate-specific antigen (PSA) or abnormal digital rectal examination results, often with prior negative biopsy results. Risk categorization was compared among targeted and standard biopsy and, when available, whole-gland pathology after prostatectomy as the “gold standard.”

INTERVENTIONS

Patients underwent multiparametric prostate magnetic resonance imaging to identify regions of prostate cancer suspicion followed by targeted MR/ultrasound fusion biopsy and concurrent standard biopsy.

MAIN OUTCOMES AND MEASURES

The primary objective was to compare targeted and standard biopsy approaches for detection of high-risk prostate cancer (Gleason score ≥4 + 3); secondary end points focused on detection of low-risk prostate cancer (Gleason score 3 + 3 or low-volume 3 + 4) and the biopsy ability to predict whole-gland pathology at prostatectomy.

RESULTS

Targeted MR/ultrasound fusion biopsy diagnosed 461 prostate cancer cases, and standard biopsy diagnosed 469 cases. There was exact agreement between targeted and standard biopsy in 690 men (69%) undergoing biopsy. Targeted biopsy diagnosed 30% more high-risk cancers vs standard biopsy (173 vs 122 cases, $P < .001$) and 17% fewer low-risk cancers (213 vs 258 cases, $P < .001$). When standard biopsy cores were combined with the targeted approach, an additional 103 cases (22%) of mostly low-risk prostate cancer were diagnosed (83% low risk, 12% intermediate risk, and 5% high risk). The predictive ability of targeted biopsy for differentiating low-risk from intermediate- and high-risk disease in 170 men with whole-gland pathology after prostatectomy was greater than that of standard biopsy or the 2 approaches combined (area under the curve, 0.73, 0.59, and 0.67, respectively; $P < .05$ for all comparisons).

CONCLUSIONS AND RELEVANCE

Among men undergoing biopsy for suspected prostate cancer, targeted MR/ultrasound fusion biopsy, compared with standard extended-sextant ultrasound-guided biopsy, was associated with increased detection of high-risk prostate cancer and decreased detection of low-risk prostate cancer. Future studies will be needed to assess the ultimate clinical implications of targeted biopsy.

Reference

Available from: https://www.practiceupdate.com/content/diagnosing-prostate-cancer-with-mr-ultrasound-fusion-guided-biopsy-vs-ultrasound-guided-biopsy/21441/6/3/1.

2. PROGNOSTIC SCORING USING THE COLORECTAL CANCER MICROENVIRONMENT

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TAKE-HOME MESSAGE

- A novel histopathologic prognostic score was developed from the analysis of inflammatory cell infiltrate and stroma within the tumor microenvironment of colorectal cancers treated by resection. Tumor samples were analyzed using Klintrup-Mäkinen (KM) grade and the tumor stroma percentage (TSP). In patients with a weak KM grade and high TSP scores, the survival rate was significantly reduced using both univariate and cumulative analyses. Conversely, patients with strong KM and low TSP scores showed greater 5-year survival rates.
- The authors conclude that a prognostic score developed from the tumor microenvironment provides a simple and reliable method for determining risk in patients with operable colorectal cancer.

ABSTRACT

PURPOSE

The tumor microenvironment is recognized as an important determinant of progression and outcome in colorectal cancer. The aim of the present study was to evaluate a novel tumor microenvironment-based prognostic score, based on histopathologic assessment of the tumor inflammatory cell infiltrate and tumor stroma, in patients with primary operable colorectal cancer.

EXPERIMENTAL DESIGN

Using routine pathologic sections, the tumor inflammatory cell infiltrate and stroma were assessed using Klintrup-Mäkinen (KM) grade and tumor stroma percentage (TSP), respectively, in 307 patients who had undergone elective resection for stage I-III colorectal cancer. The clinical utility of a cumulative score based on these characteristics was examined.

RESULTS

On univariate analysis, both weak KM grade and high TSP were associated with reduced survival (HR, 2.42; P = 0.001 and HR, 2.05; P = 0.001, respectively). A cumulative score based on these characteristics, the Glasgow Microenvironment Score (GMS), was associated with survival (HR, 1.93; 95% confidence interval, 1.36-2.73; P < 0.001), independent of TNM stage and venous invasion (both P < 0.05). GMS stratified patients in to three prognostic groups: strong KM (GMS = 0), weak KM/low TSP (GMS = 1), and weak KM/high TSP (GMS = 2), with 5-year survival of 89%, 75%, and 51%, respectively (P < 0.001).

Furthermore, GMS in combination with node involvement, venous invasion, and mismatch repair status further stratified 5-year survival (92% to 37%, 93% to 27%, and 100% to 37%, respectively).

CONCLUSIONS

The present study further confirms the clinical utility of assessment of the tumor microenvironment in colorectal cancer and introduces a simple, routinely available prognostic score for the risk stratification of patients with primary operable colorectal cancer.

Reference

Available from: https://www.practiceupdate.com/content/prognostic-scoring-using-the-colorectal-cancer-microenvironment/21363/6/1/1.

3. FDA APPROVES FIRST TREATMENT FOR RARE TYPE OF NON-HODGKIN'S LYMPHOMA.

The Food and Drug Administration has approved ibrutinib for the treatment of Waldenstrom's macroglobulinemia, the first treatment approved for this rare cancer, and the fourth indication approved for this targeted therapy.

Ibrutinib, marketed as Imbruvica by Pharmacyclics and Janssen Biotech, is an oral kinase inhibitor and was approved in 2013 for treating patients with mantle cell lymphoma who have received one previous therapy.

In 2014, the drug was approved for patients with previously treated chronic lymphocytic leukemia (CLL) who have received at least one previous therapy, followed by approval for patients with CLL who carry a deletion in chromosome 17.

The latest approval "highlights the importance of development of drugs for supplemental indications," Dr. Richard Pazdur, director of the office of hematology and oncology products in the FDA's Center for Drug Evaluation and Research, said in the FDA statement announcing the approval.

This is the first approved treatment for Waldenstrom's macroglobulinemia (WM), a rare, indolent type of non-Hodgkin's lymphoma, according to the statement issued by Pharmacyclics. "Because there has never been an FDA-approved treatment for Waldenstrom's macroglobulinemia since it was first identified over 70 years ago, doctors had to rely on therapies borrowed from similar cancers to treat these patients," Dr. Steven Treon, director of the Bing Center for Waldenstrom's Macroglobulinemia at the Dana-Farber Cancer Institute, Boston, said in the statement.

Dr. Treon was the lead investigator of the phase II study that was the basis of the approval. In the study of 63 previously treated patients with WM, patients received 420 mg of ibrutinib per day, until disease progressed or they could no longer tolerate adverse effects of the drug. The overall response rate was 62%, and the duration of response ranged from 2.8 months to almost 19 months, according to the FDA. Thrombocytopenia, neutropenia, diarrhea, anemia, fatigue, musculoskeletal pain, bruising, nausea, upper respiratory tract infection, and rash were among the most common adverse events associated with treatment. The warnings and precautions section of the prescribing information includes recommendations to monitor patients for hemorrhage, infections, and atrial fibrillation, and states that other malignancies have occurred in patients during treatment and that it can cause fetal harm.

Ibrutinib inhibits Bruton's tyrosine kinase, "a signaling molecule of the B-cell antigen receptor (BCR) and cytokine receptor pathways," according to the most recent version of the prescribing information. "BTK's role in signaling through the B-cell surface receptors results in activation of pathways necessary for B-cell trafficking, chemotaxis, and adhesion. Nonclinical studies show that ibrutinib inhibits malignant B-cell proliferation."

About 1,000 to 1,500 people are diagnosed every year with WM in the United States, at a median age of 60-70 years, according to Pharmacyclics.

Reference

Available from: https://www.practiceupdate.com/content/fda-approves-first-treatment-for-rare-type-of-non-hodgkins-lymphoma/21491/6/1/2.

4. ELEVATED C - REACTIVE PROTEIN IS ASSOCIATED WITH POOR PROGNOSIS IN PROSTATE CANCER TREATED WITH RADIOTHERAPY.

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TAKE-HOME MESSAGE

- In this retrospective analysis, the potential prognostic value of plasma C-reactive protein was evaluated in 261 prostate cancer patients who were receiving radiotherapy treatment. High levels of C-reactive protein were associated with decreased cancer-specific survival, overall survival, and disease-free survival.
- C-reactive protein expression may represent a novel prognostic marker for prostate cancer.

ABSTRACT

BACKGROUND

C-reactive protein (CRP) is a sensitive marker of inflammation that has been linked with prognosis in various solid tumours. In the present study, we analysed the prognostic relevance of elevated plasma CRP levels in prostate cancer patients treated with radiotherapy.

METHODS

A total of 261 prostate cancer patients treated with 3D-conformal radiotherapy were evaluated retrospectively. Cancer specific survival (CSS), overall survival (OS) and clinical disease-free survival (DFS) were assessed using Kaplan–Meier analysis. To evaluate the independent prognostic significance of CRP plasma levels, multivariate Cox regression models were applied.

RESULTS

The median follow-time was 80 months. Applying receiver operating characteristics (ROC) analysis, the optimal cut-off level for the plasma CRP was 8.6 mg l−1. An elevated CRP level was associated with decreased CSS in univariate (hazard ratio (HR) 3.36, 95% confidence interval (CI) 1.42–7.91; p = 0.006) and multivariate analysis (HR 4.31, 95% CI 1.22–15.1; p = 0.023). Furthermore, a significant association with OS was detected in univariate (HR 2.69, 95% CI 1.57–4.59; p < 0.001) and multivariate analyses (HR 3.24, 95% CI 1.84–5.71, p < 0.001). Multivariate analysis also showed a significant association between plasma CRP and clinical DFS (HR 2.07, 95% CI 1.02–4.17; p = 0.043).

CONCLUSIONS

In the present study, an elevated plasma CRP (⩾8.6 mg l−1) has been identified as a prognostic factor for poor CSS, OS and DFS in prostate cancer patients undergoing radiotherapy. The association between elevated CRP levels and poor prognosis was independent of other measures of prognosis such as tumour stage, Gleason grading and prostate specific antigen (PSA) level at diagnosis. If confirmed by additional studies, our findings may contribute to future individual risk assessment in prostate cancer patients.

Reference

Available from: https://www.practiceupdate.com/content/elevated-c-reactive-protein-is-associated-with-poor-prognosis-in-prostate-cancer-treated-with-radiotherapy/21398/6/1/1.