

Methods: UUO was created by ligation of the left ureter in rats maintained on a regular diet or the same diet but supplemented with atorvastatin (50 mg/kg/d) for 2 weeks. Renal clearance experiments were performed after release of UUO at 1 hour, 6 hours, or 12 hours.

Results: Atorvastatin treatment lowered plasma triglyceride but not cholesterol levels. Both glomerular filtration rate and effective renal plasma flow were significantly greater in atorvastatin-treated rats after release of UUO at 1 hour, 6 hours, and 12 hours. Significant reduction of urinary microalbumin to creatinine ratios occurred in the atorvastatin-treated group at 12 hours but not earlier.

Conclusions: Atorvastatin treatment affords protection of renal function in acute UUO and reduces urinary microalbumin levels without lowering cholesterol levels. This pleiotropic action of atorvastatin on preservation of renal hemodynamics may be important in attenuating subsequent renal structural injury in chronic UUO.

### Editorial Comment

Previous studies examined molecular markers of fibrosis and histologic changes in chronically obstructed kidney. This is the first research that analyzed the effects of statins (atorvastatin) on renal hemodynamics of kidneys with ureter acutely obstructed unilaterally. The present investigation showed by the first time that treatment with atorvastatin in rats with acute unilateral ureteral obstruction resulted in improvement in renal perfusion and filtration function.

The authors emphasized that these findings raise the possibility that some of the benefits of statins in the clinical trials may originate from the pleiotropic effects of statins and not specifically from the lipid-lowering effect alone. Also, it is worth to note that the dose of statin used in the present study is proportionally much higher than the doses current used in clinical practice. The authors also remembered that other studies also used supra-pharmacological doses of statins to demonstrate attenuation of tubulo-interstitial inflammation and fibrosis in rats with unilateral ureteral obstruction. Therefore, the dosage of statins required to exert their pleiotropic actions is still unknown and remains to be determined. Anyway, the present study shown that treatment with a statin in rats with acute unilateral ureteral obstruction, resulted in improvement in renal perfusion and filtration function. This open new avenue for renal protective agents.

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## RECONSTRUCTIVE UROLOGY

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### Management of radiotherapy induced rectourethral fistula

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Purpose: An increasing number of men are being treated with BT or a combination of external beam radiation therapy and BT for localized prostate cancer. Although uncommon, the most severe complication following

these procedures is RUF. We reviewed our recent experience with RUF following radiotherapy for prostate cancer to clarify treatment in these patients.

**Materials and Methods:** We recently treated 22 men with RUF following primary radiotherapy for adenocarcinoma of the prostate in 21 and adjuvant external beam radiation therapy following radical prostatectomy in 1. Time from the last radiation treatment to fistula presentation was 6 months to 20 years.

**Results:** Four patients underwent proctectomy with permanent fecal and urinary diversion. RUF repair in 5 patients was performed with preservation of fecal or urinary function. Six patients were candidates for reconstruction with preservation of urinary and rectal function, including 5 who underwent proctectomy, staged colo-anal pull-through and BMG repair of the urethral defect. The additional patient underwent primary closure of the rectum, BMG repair of the urethra and gracilis muscle interposition. Successful fistula closure was achieved in the 9 patients who underwent urethral reconstruction. All 8 candidates for rectal reconstruction showed radiological and clinical bowel integrity postoperatively with 2 awaiting final diverting stoma closure.

**Conclusions:** With the increasing use of prostate BT the number of patients with severe rectal injury will likely continue to increase. Radiotherapy induced RUF carries significant morbidity and most patients are treated initially with fecal and urinary diversion. In properly selected patients good outcomes can be expected following repair using BMG for the urethral defect along with colo-anal pull-through or primary rectal repair and gracilis muscle interposition.

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### **Incidence, clinical symptoms and management of rectourethral fistulas after radical prostatectomy**

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**Purpose:** Rectourethral fistula is a rare but severe complication after radical prostatectomy and there is no standardized treatment. We retrospectively evaluated the incidence, symptoms and management of rectourethral fistulas based on our experience. **Materials and Methods:** From 1999 to 2008 we performed 2,447 radical prostatectomies. Patients in whom postoperative rectourethral fistulas developed were identified. Based on the therapeutic approach patients were categorized into group 1-conservative treatment, group 2-colostomy with or without surgical closure and group 3-immediate surgical closure without colostomy.

**Results:** Rectourethral fistulas developed in 13 of 2,447 patients (0.53%) after radical prostatectomy. The risk of rectourethral fistulas was 3.06-fold higher ( $p = 0.074$ ) for perineal (7 of 675, 1.04%) than for retropubic prostatectomy (6 of 1,772, 0.34%). In 7 of 13 patients (54%) a rectal lesion was primarily closed at radical prostatectomy. Median followup was 59 months. In all patients in group 1 (3) the fistula closed spontaneously with conservative treatment. None of these patients had fecaluria. In group 2 of the 9 patients 3 (33%) experienced spontaneous fistula closure after temporary colostomy and transurethral catheterization. In this group 6 patients (67%) required additional surgical fistula closure, which was successful in all. Surgical fistula closure (1) without colostomy in presence of fecaluria failed (group 3).

**Conclusions:** The therapeutic concept for rectourethral fistulas should be guided by clinical symptoms. Rectal injury during radical prostatectomy is a major risk factor. In cases with fecaluria colostomy is required for control of infection and may allow spontaneous fistula closure in approximately a third of cases. In the remainder of cases surgical fistula closure was successful in all after protective colostomy.

### **Editorial Comment**

These two single institution case series review management and outcome of rectourethral fistula repair in two vastly different patient groups: surgery vs. radiation. It is well accepted that rectourethral fistula repair