demonstrate both fistula and underlying malignancy. A follow-through is also advisable to assess extent of disease in small bowel.[2] Alternatively these studies can be performed with hydro-soluble iodinated contrast medium

Symptomatic patients will require surgery. Short life expectancy and high operative risk will preclude operative treatment for malignant fistula.[3] Few advocate prompt attention to malignant fistula even if palliative, as underlying obstructive carcinoma must be resected. In the absence of nodal metastasis, radical local surgical clearance may be associated with reasonable prognosis.[2]

SK Mahajan*, BR Sood*, P Vaidya, S Thakur#, LS Pal##**

*Registrar, **Post Graduate, #Associate Professor, ##Professor and Head; Department of Medicine I.G.M.C. Shimla [H.P].
Received : 17.9.2003; Revised : 30.4.2005; Accepted : 29.12.2005

REFERENCES

1. Vagholkar KR. Small intestinal fistula. *Bombay Hospital Journal* 2001;43;4:590.
2. Keighley MRB, Williams NS. Intestinal Fistulas. In Surgery of the Anus, Rectum and Colon. WB Saunders Co. Ltd. London. 1993;2:2013-2102.
3. Berry SM, Fischer JE. Biliary and Gastro-intestinal fistulas. In Maingot's Abdominal Operations 10th Ed. Zinner MJ, Schwartz SI, Ellis H. Prentice Hall International (UK) London. 1997;1:581-625.

Fenofibrate can Increase Serum Creatinine Levels in Renal Insufficiency

Sir,

Fenofibrate is widely used to treat hypertriglyceridemia. It acts by increasing the expression of the LPL gene, while decreasing expression of apo-C III (a powerful inhibitor of LPL activity). Recent studies have shown that fenofibrate may cause a moderate reversible increase in serum creatinine levels.[1] It has not been clearly studied whether the increased creatinine levels reflect a fenofibrate induced alteration of renal function or whether fenofibrate interferes with tubular handling of creatinine. Moreover there is no Indian data on this aspect.

A retrospective study was therefore done by us at Dr. Mohans' Diabetes Specialities Centre and Madras Diabetes Research Foundation, Chennai. Medical records of diabetic subjects with no prior renal insufficiency who were given fenofibrate and followed for a minimum period of 3 years were studied. There was no significant increase of creatinine levels: 10 out of 50 patients (20%) had slight increase of creatinine in the range of 0.2 – 0.4 mg / dl, which however came down to normal with the continued use of fenofibrate.

We also studied 50 diabetic subjects with nephropathy who had received fenofibrate therapy for hypertriglyceridemia. This study revealed that 28 out of 50 patients (56%) had a marginal rise in creatinine levels even in the absence of other conditions, which may have affected the glomerular filtration rate. Liver enzymes remained unchanged.

It has been shown that fenofibrate induced changes in creatinemia induced by creatinine level measured by the Jaffe Technique were strongly correlated to those measured by HPLC (High Pressure Liquid Chromatography).[1] A study done by Hohelart *et al*[2], prospectively examined the effect of two weeks fenofibrate (200mg) treatment on renal function in 13 hyperlipidemic patients with normal renal function or mild to moderate renal failure (creatinine clearance = 110 to 30 ml / min). This study showed that fenofibrate therapy significantly increases creatinine level in patients with mild to moderate renal failure but does not alter renal hemodynamics or the glomerular filtration rate. The increase in creatinine level is not due to an inhibition of tubular excretion of creatinine, since no changes in creatinine clearance were observed (69 ± 8 vs 68 ± 8 ml / min), but it appears to be associated with a parallel increase in urinary excretion of creatinine.

Another study by Broeders *et al*[3], reported on 27 patients who developed renal dysfunction when treated with a fibric acid derivative. The specific agents used in that study were fenofibrate and bezafibrate.

One possible explanation for these diverse effects of fibric acid derivatives could be that fibrates, such as fenofibrate, ciprofibrate and bezafibrate, impair the generation of vasodilatory prostaglandins, probably because of the activation of peroxisome proliferator-activated receptors (PPARs), which can down-regulate the expression of the inducible COD-2 enzyme.

We conclude that fenofibrate therapy does not affect creatinine levels in those without renal disease. However, it is better to withhold fenofibrate in those with established renal disease. If it is used, physicians should be aware that they can expect a marginal rise in creatinine levels which is most likely reversible on stopping the drug.

S Paul, V Mohan

Dr. Mohan's Diabetes Specialities Centre and Madras Diabetes Research Foundation, Gopalapuram, Chennai – 600 086.
Received : 12.12.2005; Accepted : 24.1.2006

REFERENCES

1. Hottelart C, el Esper N, Rose F, Achard JM, Fournier A. Fenofibrate increases creatininemia by increasing metabolic production of creatinine. *Nephron* 2002;92:536-41.
2. Hottelart C, el Esper N, Achard JM, Pruna A, Fournier A. Fenofibrate increases blood creatinine, but does not change the glomerular filtration rate in patients with mild renal insufficiency. *Nephrologie* 1999;20:41-4.
3. Broeders N, Knoop C, Antoine M, Tielemans C, Abramowizc D. Fibrate induced increase in blood creatinine: is gemfibrozil the only innocuous agent? *Nephrol Dial Transplant* 2000;15:1993-9.