



## EDİTÖRE MEKTUP / LETTER TO THE EDITOR

### Hoarseness can be a predictive symptom for cardiovascular disease in hemodialysis patients

Ses kısıklığı hemodiyaliz hastalarında kardiyovasküler hastalıkların ön bulgusu olabilir

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Dear Editor,

The American Academy of Otolaryngology-Head and Neck Surgery Foundation guideline defined hoarseness as a disorder characterised by altered vocal quality which impairs communication and reduces quality of life<sup>1</sup>. While it is often caused by

benign, self-limiting conditions such as gastroesophageal reflux disease, voice over-use in healthy individuals, the causes of hoarseness related with hemodialysis aren't known exactly. Hoarseness which occurs at the end of dialysis is a recurrent, transient complication and therefore it isn't usually expressed to the nephrologists.

**Table 1. Parameters belonging to four cases**

Parameters	1st Case	2nd Case	3rd Case	4th Case
Age / Gender	80 / M	21 / F	62 / M	57 / M
Etiyoloji of primary renal disease	Unknown	Unknown	DM	Unknown
Duration of dialysis (months)	12	60	36	12
The beginning time of hoarseness	2nd hour	2nd hour	2nd hour	2nd hour
Ongoing period of hoarseness	4-6 hours	8-10 hours	4-6 hours	4-6 hours
Weekly dialysis period (hours)	2X4	3X4	3X4	3X4
Blood flow rate(ml/min)	300-350	300-350	300-350	300-350
Dialysate flow rate(ml/min)	500	500	500	500
Dialyzer area(m <sup>2</sup> )	1.6-1.8	1.4-1.6	1.6-1.8	1.8-2
UF in each dialysis session (ml)	2000-2500	3000-3500	3000-3500	4000-5000
Vascular access	AVF	AVF	AVF	AVF
Pre-post dialysis mean BP (mmHg)	100/90	96.5/76.5	93/70	83/70
Frequency of hypotensive attacks	2/12 session	3/12 session	6/12 session	3/12 session
Kt/v / URR%	1.72 /77.8	2 / 80	1.44 / 70.8	1.42 / 70
Sodium / Potassium(mmol/L)	138 /6.5	136 /5.6	135 /5.2	137 / 5.5
Calcium / Phosphorus(mg/dl)	9.7 /7.3	8.3 /7.4	8.3 /5	7.5 /6
Ca x P	70.81	61.42	41.5	45
Ejection fraction	60	68	30	62
Presence of cardiovascular calcification	(+)	(+)	(+)	(+)
Left ventricular mass index	225	217	261	196
Left ventricular diastolic dysfunction	(+)	(+)	(+)	(+)

UF:Ultrafiltration BP: Blood pressure F: Female M:Male DM: Diabetes Mellitus AVF: Arteriovenous fistula

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While the incidence of post-dialysis hoarseness was found in 60 percent of patients in one study<sup>2</sup>, another study also found in 15,2 percent of patients<sup>3</sup>. Among 57 our patients we found 4 cases complained hoarseness during the hemodialysis. The clinical and laboratory findings of our patients were shown in Table 1.

In the literature there have been a limited number of studies concerning post-dialysis hoarseness. Oric et. al reported the results of nasopharyngeal laryngoscopic findings of 25 hemodialysis patients during pre and post dialysis period. Pictures of vocal cords were taken and the cords were measured by using computer software. After dialysis a decrease in the vocal cords' thickness was found. They suggested that it was related with volume changes during dialysis<sup>2</sup>. In another study the phonatory effects of fluid removal were investigated in 6 hemodialysis patients. When volume was drawn, phonation threshold pressure increased significantly and reversed to baseline with fluid replacement in 4 out of 6 patients<sup>4</sup>. Balasubramaniam et.al investigated the changes in acoustic and aerodynamic characteristics of voice in hemodialysis patients. Frequency and aerodynamic measures of voice were significantly different compared with control subjects. They suggested that renal system influenced the respiratory and phonatory system depending on the negative fluid balance<sup>5</sup>. During each hemodialysis session ultrafiltrate was drawn at least 3 liters from our patients.

We identified increased left ventricular mass index, valve calcifications, left ventricular diastolic dysfunction on patients' echocardiography. In the study conducted by Zümürtdal et.al, comparing with control group, coronary artery disease, congestive heart failure, autonomic neuropathy, intradialytic hypotensive attacks, heart valve abnormalities, left

ventricular diastolic dysfunction were significantly higher in hoarseness group<sup>3</sup>.

There were case reports about the effect of impairment of calcium-phosphorus homeostasis on vocal cords in the literature. In a dialysis patient metastatic calcification on vocal cords as a cause of hoarseness was reported<sup>6</sup>. Interestingly serum phosphorus level and CaXP product of our four patients were also increased but we couldn't confine our patients to have their vocal cords examined

In conclusion; although hoarseness is transient and harmless, it may indicate inadequate of cardiac function, overvolemia and the presence of metastatic calcifications. Briefly it may be a poor prognostic criteria for hemodialysis patients

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