Chronic kidney disease (CKD) involves progressive decline in renal function occurring over months or years. Numerous oro-facial changes that occur in a renal patient because of the nature of the diseases are the primary concerns to dentists. Other factors of interest include bleeding during dental procedures, drug-dosage adjustments, anemia (uremic), and hypertension. Exhaustive reports pertinent to these factors, which are broadly discussed as dental management and pharmacological perspectives of renal patients, have been published. However, the documented evidence ends with a limitation demanding oral considerations for patients with risk factors of CKD. On a positive note, to meet the stated requirement, the present communication focuses on resistant hypertension (RH) associated with CKD. At the same time, readers could raise the question that dental considerations for a population with general hypertension would be sufficient to elucidate this scenario? If yes, this communication may have a false positive impact. Meanwhile, the objective is to inform dentists that RH is closely associated to CKD, and not to be confused with the hypertensive patient care in dental clinics.

CKD patients require more attention from healthcare providers owing to its widespread occurrence which enlist them under global issue. World kidney day 2016 targeted the paediatric community in order to enhance the status of the children and eliminate the barriers of the infectious disease at its initial stage. In the context of Pakistani population, a recent report revealed that about 28.6% adults were affected primarily due to uncontrolled hypertension with renal failure as the common complication among 1,336 candidates. Meanwhile, a rapid increase in the number of patients receiving haemodialysis in recent years raise concern towards the increase; and the services reaching the doors of needy individuals or the silent nature of CKD is accountable for this growing number.

Medically, the asymptomatic nature of CKD favours the delayed diagnosis and eventually accelerates the new admissions. Main etiological factors responsible for the deterioration of renal activity include diabetes and hypertension. Several studies have concluded that hypertension is a prominent risk factor of CKD. Moreover, hypertension is not only the causative factor for CKD but also can be a threat for patients with CKD and should be acknowledged as a silent killer because it induces organ damage (kidney, heart, brain, and eyes) prior to the onset of clinical manifestations. RH, a subgroup of hypertension, is a condition where the blood pressure surpasses 140/90 mmHg, regardless of consuming ≥3 anti-hypertensive medicines, including a diuretic, at maximum dosages. Associated hypertension may transform into RH due to the accumulation of sodium and fluid in patients with renal diseases. This accumulation may make the patient non-compliant toward anti-hypertensive agents.

Previous literature has suggested that the key to elucidating the possible mechanism of this association is estimating the serum creatinine level in patients with CKD. RH is prevalent in CKD patients having an estimated glomerular filtration rate (eGFR) of ≥30 mL/min/1.73 m². Medical negligence shown towards RH could aggravate the progression of the disease, leading to kidney failure and cardiovascular diseases. Therefore, a decrease in eGFR is inversely proportional to the increased risk for untoward effects. Considering the high prevalence of RH and its associated complexity in CKD
cases, oral clinicians should give a second thought before commencing dental treatment in such cases. Initial evaluation should involve a comprehensive and detailed medical/dental history. As a standard guideline, it is important to monitor blood pressure before and after the dental manoeuvre to sustain the blood flow in these patients.\textsuperscript{7} To better understand the relation between RH and stages of CKD, GFR should be assessed.\textsuperscript{3} Considering the best available evidence, current reports advocate the use of the 2012 CKD-EPI (epidemiology collaboration) cystatin C equation for accurately calculating GFR (Appendix I).\textsuperscript{3} The gradients not only aid the dentists to evaluate GFR but also provide the status of the prevailing medical condition. Information on the progression of disease would help communicate with the medical specialist and retrieve additional details on pharmacological therapy.\textsuperscript{6,9} In order to prevent complications in these medically compromised patients, interaction with nephrologists should be considered as a part of oral care. The task of a dental surgeon is doubled while handling patient with CKD because of associated RH. Epidemiological studies have confirmed a strong association between RH and major cardiovascular events. A large cohort study, involving 205,750 patients conducted in the United States, revealed increased risk for cardiac morbidity in patients with associated RH, after monitoring them for 3.8 years.\textsuperscript{6} When such potential risk factors are under-estimated/undiagnosed, they could manifest as major cardiovascular events (stroke, myocardial infarction) during oral care. Obese and elderly individuals are the other common victims of RH, wherein their cardiovascular risk is expected to accelerate with the uncontrolled hypertension. The above data prove that RH is an independent risk factor of cardiovascular diseases; and a cascade of adverse cardiovascular events could occur in CKD patients, when RH is neglected or left untreated.

In the light of the above evidence, it is easy to predict that invasive dental procedures that involve manipulation of the gingival tissue or perforation of the oral mucosa such as extractions, periodontal surgery or dental implants in CKD patient could trigger the risk factor, RH, when performed without proper diagnosis and treatment planning. Though the incidence of acute cardiovascular complications aftermath dental procedure is low, the same does not infer that risks are negligible. Cerebrovascular accidents do occur in dentistry and especially in medically compromised patients having a background of cardiac and CKD.\textsuperscript{10} Considering the patients well-being, the former statement should be interpreted as evidence in dental practice.

On the professional front, the goal is to manage patients with CKD by imparting a secure dental treatment without aggravating the prevailing health. As a precautionary measure, a brief explanation of the proposed plan and probable episodes where pain could be experienced should be narrated to patient prior to the commencement of the treatment. It is essential to make sure that the patient is comfortable on dental chair and the dental unit should be adjusted slowly in order to avoid orthostatic hypertension, which is often ignored during oral care. Prior permission of a nephrologist should be taken to tackle emergency (dental crisis) situations, and in order to avoid further complexity, dental procedures should be preferably performed under the close observation of medical specialists. Further, to maintain the blood pressure during the entire course of a dental procedure, meticulous care should be taken for deducing the anxiety and stress levels. Most importantly, a homely atmosphere should be created and morning appointments that end in short notice should be scheduled to avoid stress.

\section*{CONCLUSION}

It is mandatory to know about the potential risk/causative factors to prevent/manage any adverse situation that could occur during dental treatment. CKD patients have increased susceptibility to bleeding; and thereby performing invasive procedures like tooth extraction or surgical intervention in later stages of dialysis period could deteriorate the oral and medical condition. Instead of considering the patients with CKD as medically compromised individuals, dentists should reconsider these patients as high-risk subjects and should prioritise them, based on the associated risk factors. CKD patients who are liable to develop RH could be recognised during the treatment of hypertension when the general physicians/dentists are prudent. We believe that this paper will serve as gentle reminder for oral healthcare professionals to differentiate/understand the influence of RH in patients with CKD.

\section*{REFERENCES}


