

Instant gas geyser induced irreversible hypoxic ischaemic brain injury

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Madam, we wish to notify the readers on the hazards caused by instant gas geysers. Two such cases presented to us last winter. Two young patients a 19 years old female admitted on 6th of February 2014, and 21 years old male admitted on 19th January, 2014 while taking a bath were found unconscious in the bathroom and presented to the emergency. These bathrooms were fitted with instant gas geysers with liquid petroleum gas (LPG) as source of heating. Both the patients had impaired conscious level and were finally intubated. On admission they had deranged cardiac markers and liver function test's and MRI brain showed the evidence of hypoxic ischaemic injury as evident by the areas of restricted diffusion on DWI and hyper intensities on T2 weighted images involving basal ganglia, cortical and subcortical areas consistent with ischaemia (Figure). Their carbon monoxide levels were not significantly raised, drug toxicology screen was negative in both cases. Both developed generalized tonic clonic seizures. They were regularly followed during admission. The female patient had GCS of 6/15 on admission that deteriorated to 3/15 on the third day and the male patient had initial GCS of 4/15 that remained 4/15 on the third day. At 3 months follow up, they had impaired cognition and were unable to carry out their daily activities independently. MRI brain Images of the female patient were done on February 6, and of the male patient done on January 29 (Figure).

The purpose of writing this letter is to highlight the danger associated with instant gas geysers, when installed inside the closed or poorly ventilated washroom, resulting in transient effects like syncope, seizures, visual loss and encephalopathy or permanent brain injury like cognitive decline, pyramidal and extrapyramidal features and visual loss. We previously reported¹ a case series of 7 patients presenting with reversible encephalopathy and seizures resulting from gas geysers, and all had spontaneous recovery. All the cases we reported earlier had transient cerebral dysfunction with complete recovery while these two cases did not recover completely and had residual cerebral dysfunction at 3 months. Those patients used

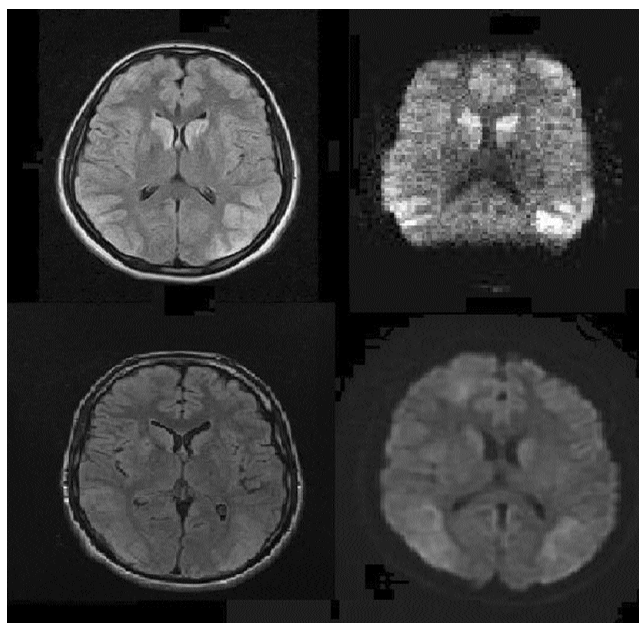


Figure: MRI images of female patient (top) and male patient (bottom). Left images (top and bottom) FLAIR sequences showing areas of high signal intensities involving bilateral caudate nuclei and parieto-occipital cortex and DWI images (right top and bottom) showing diffusion restriction in the same areas.

natural gas as source of gas and we postulated that the use of LPG as a source of gas supply may cause much more severe damage.¹ This issue was discussed on the forum of Pakistan society of Neurology and we also wrote to the newspaper to spread the message among the general public and inform health authorities.² Another case series recently from India reported 26 cases, all of them recovered spontaneously only four had mild cognitive impairment that recovered completely at 3 months while 2 had residual parkinsonian features.³ The source of gas supply was LPG in their case series.

Currently there are no government regulations found on this issue. General public awareness through newspapers, television and specifically education of the geyser installers is needed. Health authorities and Pakistan Medical Association can help spread awareness through print and electronic media. Through your esteemed journal we wish to spread awareness among the masses and colleagues about this serious issue. It should be

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emphasized that gas geysers should be installed outside the washrooms and adequate ventilation should be ensured to prevent mortality and morbidity.

References

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