*Functional Hypoaldosteronism post Adrenalectomy: An under recognised phenomenon.*

Primary hyperaldosteronism is a common cause of secondary hypertension. The PAPY study which looked at curable forms of primary hyperaldosteronism quoted a prevalence of aldosterone producing adenoma (APA) in a population of newly diagnosed hypertensive patients as 4.8%.[[1]](#footnote-1) Primary hyperaldosteronism resulting from a functional adenoma may be treated surgically with an adrenalectomy.

Following this surgery, the remaining adrenal gland can be unresponsive to the lower levels of aldosterone (functional hypoaldosteronism). The sodium loss leads to hypovolaemia and retention of potassium. This results in a deterioration in renal function, hypotension and hyperkalaemia which may be severe, requiring mineralocorticoid supplementation.[[2]](#footnote-2)

In the past five years we have identified four cases of functional hypoaldosteronism post adrenalectomy in patients referred to a general nephrology clinic with post-operative kidney injury of unknown cause. Each case demonstrated a drop in aldosterone levels post-surgery with a concurrent deterioration in renal function and increase in potassium levels. There was a significant increase in creatinine resulting in acute kidney injury in each case (stage 1 to 3). Review of the clinical notes demonstrated postural symptoms, fatigue and dehydration. All of the patients suffered permanent renal injury and none had a return to baseline renal function.

There are currently no guidelines relating to the post-operative surveillance of such patients and practice regarding prescribing mineralocorticoid replacement varies. Current literature suggests both that post-operative hyperkalaemia due to this phenomenon is not rare and that there are clear pre-operative risk factors such as older age, longer duration of hypertension, impaired renal function and higher levels of aldosterone.[[3]](#footnote-3),[[4]](#footnote-4)

We propose that functional hypoaldosteronism post unilateral adrenalectomy is an under recognised phenomenon and as such demands further investigation to assess occurrence and at-risk groups. We aim to promote recognition amongst the nephrology community and prompt mineralocorticoid therapy to those exhibiting functional hypoaldosteronism to minimise the risk of hyperkalaemia and permanent loss of renal function.

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3. [BMC Endocr Disord.](https://www.ncbi.nlm.nih.gov/pubmed/27460219) 2016 Jul 27;16(1):43. Severe hyperkalemia following adrenalectomy for aldosteronoma: prediction, pathogenesis and approach to clinical management- a case series. [Tahir A](https://www.ncbi.nlm.nih.gov/pubmed/?term=Tahir%20A%5BAuthor%5D&cauthor=true&cauthor_uid=27460219), [McLaughlin K](https://www.ncbi.nlm.nih.gov/pubmed/?term=McLaughlin%20K%5BAuthor%5D&cauthor=true&cauthor_uid=27460219), [Kline G](https://www.ncbi.nlm.nih.gov/pubmed/?term=Kline%20G%5BAuthor%5D&cauthor=true&cauthor_uid=27460219). [↑](#footnote-ref-3)
4. [Clin Chim Acta.](https://www.ncbi.nlm.nih.gov/pubmed/23727469) 2013 Sep 23;424:114-8 Incidence and factors of post-adrenalectomy hyperkalemia in patients with aldosterone producing adenoma. [Chiang WF](https://www.ncbi.nlm.nih.gov/pubmed/?term=Chiang%20WF%5BAuthor%5D&cauthor=true&cauthor_uid=23727469), [Cheng CJ](https://www.ncbi.nlm.nih.gov/pubmed/?term=Cheng%20CJ%5BAuthor%5D&cauthor=true&cauthor_uid=23727469), [Wu ST](https://www.ncbi.nlm.nih.gov/pubmed/?term=Wu%20ST%5BAuthor%5D&cauthor=true&cauthor_uid=23727469), [Sun GH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Sun%20GH%5BAuthor%5D&cauthor=true&cauthor_uid=23727469), [Lin MY](https://www.ncbi.nlm.nih.gov/pubmed/?term=Lin%20MY%5BAuthor%5D&cauthor=true&cauthor_uid=23727469), [Sung CC](https://www.ncbi.nlm.nih.gov/pubmed/?term=Sung%20CC%5BAuthor%5D&cauthor=true&cauthor_uid=23727469), [Lin SH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Lin%20SH%5BAuthor%5D&cauthor=true&cauthor_uid=23727469). [↑](#footnote-ref-4)