The AAP California Chapter 2 sent out a call for abstracts on scholarly projects by trainees in the Southern California counties of Kern, Los Angeles, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura. The accepted abstracts were showcased at the 2023 Advances in Pediatrics Virtual Symposium. We would like to recognize each finalist and their abstract in our chapter newsletter. Thank you to everyone who participated in this year's research awards.

Accepted for Poster Presentation:

Is this Purely New Onset Type 1 Diabetes? A case of New Onset Type 1 Diabetes and New Onset Addison's Disease

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A 17 y/o female presented to the ED with complaints of tachycardia, fatigue, polyuria, polydipsia, and weight loss. She was found to have a blood glucose of 453 and HbA1C of 12.1, but a normal anion gap. She was admitted to the pediatric floor for initiation of subcutaneous insulin and education for presumed new onset type 1 diabetes. Interestingly, she was noted to have frequent episodes of hypoglycemia, particularly in the early morning hours, despite conservative insulin doses, and she had very high urine output with glucosuria despite low-normal blood sugar levels and absence of IVF. She also had continued hyponatremia despite normalization of blood sugar. On further history, she was noted to be short stature with failure to thrive and had reported complaints of fatigue and "tanning easily" to her pediatrician several months prior to presentation. This concerned the care team that her presentation couldn’t exclusively be explained by new onset type 1 diabetes.

Differential diagnoses included psychogenic polydipsia, atypical type 1 diabetes/ early honeymoon period, Fanconi syndrome, and Addison’s disease. It was felt this was unlikely to be early honeymoon period given that typically occurs after 3 months of treatment. There was low suspicion for psychogenic polydipsia, so no additional testing was ordered. A urinary phosphate to rule out Fanconi’s and an ACTH to rule out Addison’s disease were ordered. The ACTH came back higher than the lab’s ability to read it. Renin level came back elevated, and she was positive for 21-hydroxylase antibodies. Because of the circulating 21 hydroxylase antibodies and elevated ACTH, she was diagnosed with Addison’s disease. These antibodies inhibit the 21-hydroxylase enzyme which starts a downward cascade leading to the lack of production of cortisol and aldosterone within the adrenal gland. The lack of aldosterone led to her hyponatremia and polyuria. The lack of cortisol caused her fatigue and recurrent hypoglycemia. The increased ACTH levels resulted in the complaints of easy “tanning”.

Given her diagnosis of Addison’s and type 1 diabetes she was subsequently diagnosed with Autoimmune Polyglandular Syndrome Type II. APS-II is defined as Addison’s disease in addition to either autoimmune thyroid disease or type 1 diabetes. Women are more likely to be affected and its cause is multifactorial.

This case is especially unique in that both diseases were diagnosed at the same time. After extensive literature review, no case reports were found of concurrent diagnosis of type 1 Diabetes and Addison's disease within the same hospital stay. This case shows the importance of not anchoring to one diagnosis. Individually, all these nuances had a possible explanation, however, this case highlights the power of the physicians' clinical judgment and recognition of when it's important to search for "zebras".

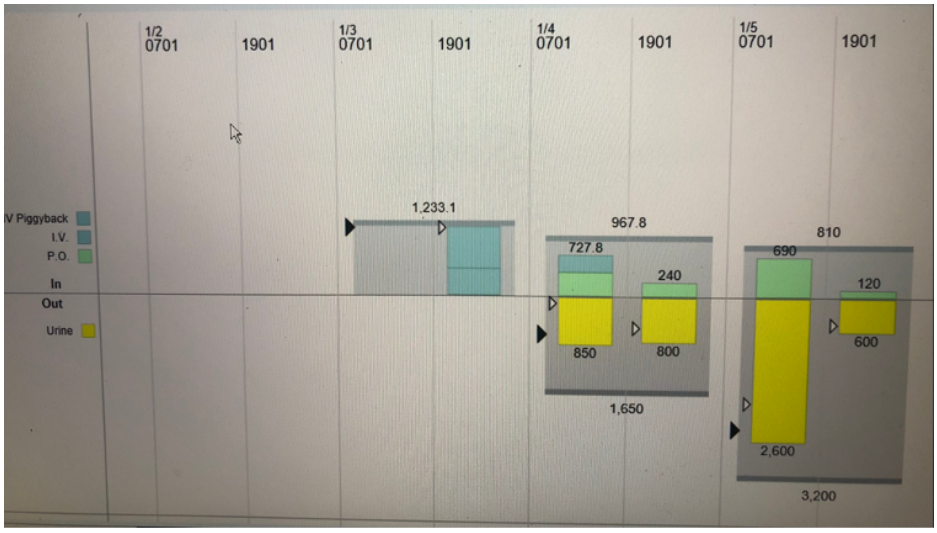

Figure 1 shows the patient's high urinary output after admission. On 1/5 her daily urine output was 3.5 ml/kg/hr. Her admission fluid balance was negative 2.4L. She only received about ¾ of a litter of IV fluids.

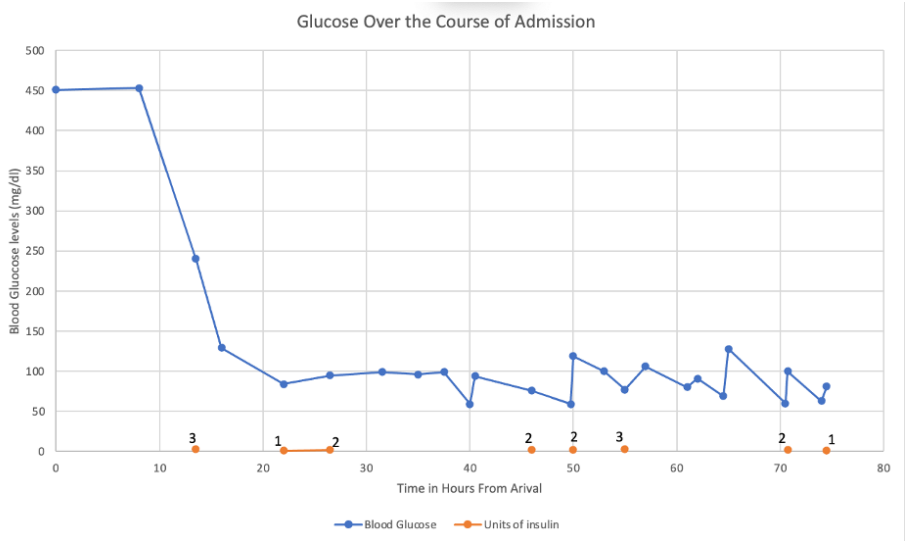

Figure 2 shows the patient's glucose levels over the course of her admission and when she received Humalog dosing for meals.

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