Effects of Sodium and Potassium on the Body

Jenny Pedersen, RN, MSN
Sodium

- Acid-base balance
- Water balance
- Transmission of nerve impulses
- Muscle contraction
Sodium is vital in cellular ion exchange - Sodium-Potassium Pump

- Neuronal conduction
- Muscle contraction
Sodium in Renal Failure

- Early CKD, kidney’s adapt by increasing sodium excretion
- Late stage, kidney’s not able to excrete as much sodium
- Leads to fluid related hypertension & edema
- Dialysis, ultrafiltration and diuretics only way to get rid of sodium.
- Diet / fluid intake important
Potassium

- Regulates water and acid-base balance.
- Muscle contraction
- Nerve conduction
- Energy metabolism
Potassium in Renal Failure

- Excreted by the kidneys when renal function normal.
- Vomiting, diarrhea, excessive sweating
- Decreased kidney function means decreased potassium excretion.
Too much

- Sodium – hypertension, edema, CHF, other cardiac complications
- Potassium – muscle fatigue, weakness, paralysis, nausea and abnormal heart rhythms.
Too little

- Sodium – seizures, headache, confusion, nausea and vomiting, muscle weakness or spasm, and irritability.

- Potassium – weakness, fatigue, constipation, heart arrhythmias, muscle cramping.
Conclusion

- Both sodium and potassium = important cations
- Balance is key
- Remember the role kidney function plays in each
References

