The Role of Obesity on Chronic Kidney Disease in Primary Care: An Integrative Review
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Introduction

- Obesity is a primary and independent risk factor for the development of chronic kidney disease (CKD).
- The cost and implications of obesity and CKD combined are tremendous, yet preventable in many situations.
- Increasing primary care provider awareness of these co-morbid conditions can greatly improve the burden CKD is placing on the public health system.
- The incidence of CKD has steadily risen over the last decades and now affects 24.5% of people over the age of 60 (National Kidney and Urologic Diseases Information Clearinghouse [NKUDIC], 2012).
- In 2010, the overall Medicare expenditure for patients with CKD was $41 billion, accounting for 27.1% of Medicare diabetes dollars (United States Renal Data System [USRDS], 2012).

Methods

- Long collected and disseminated all information independently.
- Primary studies, review articles, and clinical practice guidelines were analyzed.
- All sources analyzed were published within the past five years: January 1, 2009 through December 31, 2014.
- Study participants were at least 18 years old, obese (body mass index [BMI] >30), and in any stage of CKD.
- Selected articles were appraised using the PRISMA guidelines (Moher et al., 2009).

Results

- Eleven studies with 8,888 participants were included.
- Results from studies consistently demonstrated renal profile improvement with decreased BMI, independent of weight loss method.
- Studies of specific renal function examined and improved with weight loss are as follows:
  - GFR: 6
  - Creatinine: 1
  - GFR and Creatinine: 1
  - GFR and Proteinuria: 1
  - GFR, Proteinuria, and Albuminuria: 2

<table>
<thead>
<tr>
<th>Study, by author</th>
<th>Participants</th>
<th>P-value</th>
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<tbody>
<tr>
<td>Schuster et al. (2011)</td>
<td>n=813</td>
<td>&lt;0.001</td>
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<td>Herget-Rosenthal et al. (2013)</td>
<td>n=803</td>
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<td>Malkina et al. (2013)</td>
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<td>Shen et al. (2010)</td>
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<td>Wang et al. (2013)</td>
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<tr>
<td>Tirosi et al. (2013)</td>
<td>n=318</td>
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<td>Getty et al. (2012)</td>
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<td>Alexander et al. (2009)</td>
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<td>Jesudason et al. (2013)</td>
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<td>Neto et al. (2009)</td>
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<td>Bolignano &amp; Zoccali (2013)</td>
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Conclusion

- A BMI greater than 30 was linked as an independent risk factor for the initiation of and a decline in kidney function leading to CKD.
- The growing epidemic of obesity substantiates the correlation of these disease processes and serves as a meaningful modifiable risk factor for CKD.
- Decreasing the severity of obesity greatly improves CKD outcomes in the primary care setting.
- Primary care provider recognition and effective intervention of obesity’s impact on CKD can positively impact the nation’s health and decrease healthcare spending.
- The link between these co-morbid processes has significant implications for primary care practice.
- Primary care providers can use this knowledge to vigilantly monitor and treat obese individuals for CKD.

References

Resources are available as an additional handout.

Acknowledgement

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