Low testosterone on social media: Application of natural language processing to understand patients’ perceptions of hypogonadism

Vadim Osadchiy BS, Jesse N. Mills MD, Sriram V. Eleswarapu MD PhD
Department of Urology, David Geffen School of Medicine, University of California, Los Angeles

Background and Aims

- Reddit and Twitter are popular social media forums through which members actively discuss hypogonadism.
- To identify themes of online discussion regarding low testosterone and testosterone replacement therapy (TRT).
- To inform how physicians may better evaluate and counsel men with hypogonadism.

Methods

Reddit
>200M Users
r/Testosterone
12/2015-5/2019

Twitter
>300M Users
"low T"
"low testosterone"
"testosterone replacement"
6/2019-9/2019

Binary Text Matrix

MEM with PCA

UCLA Health

AUA 2020 -- Abstract ID: 20-730
@OsadchiyV
Low testosterone on social media: Application of natural language processing to understand patients’ perceptions of hypogonadism

Vadim Osadchiy BS, Jesse N. Mills MD, Sriram V. Eleswarapu MD PhD
Department of Urology, David Geffen School of Medicine, University of California, Los Angeles

Analysis of >200k Discrete Social Media Posts

Reddit (N = 199,335)
• Results of Laboratory Tests: “LH” “FSH” “Free” “Prolactin”
• Lifestyle Interventions: “Diet” “Body” “Sleep” “Gym” “Eat”
• Seeing a Doctor: ”Doctor” “Low” “Told” “Month” “Urologist”
• Medications: ”Testosterone” “HCG” “Clomid” “Increase”

Twitter (N = 6,659)
• Hypogonadism Symptoms: “Libido” “Sex” “Muscle” “Drive”
• Cardiovascular Risk: ”Heart” “Attack” “Risk” “Increase”
• Derogatory Comments: “Boy” “Soy” “Cuck” “Little” “Girl”

Data was Suitable for NLP
• Kaiser-Mayer-Olkin Statistic: >0.60
• Bartlett’s Test of Sphericity: <0.001

Men turn to social media to learn about symptoms of hypogonadism, interpretation of personal lab results, and cardiovascular risk.

Practicing physicians may do well to bring up online discussions during clinical consultations, to pull back the curtain and dispel myths.