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RESEARCH ARTICLE

OBESITY AND URINARY INCONTINENCE

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Abstract

Urinary incontinence, the involuntary leakage of urine, is oftenunderdiagnosedandundertreated.Urinaryincontinenceaffects almost 50% of middle-aged and older women worldwide andaffectsthequalityoflifeseverely.Several risk factors have been attributed to urinary incontinence,obesity is an independent risk factor for stress-related and mixedurinary incontinence and is the most important risk factor for dailyurinaryincontinencecomparedtoanyotherfactor.Incontinence predisposes patients to other health problems, contributes todepression and social isolation, and is a significant source of dependencyamongtheelderly,Studies show that each 5-unit increase in body mass index (BMI) isassociated with a 60 –100% increased risk of daily urinary incontinence.This paper explores the relationship between obesity and urinaryincontinence, emphasizing obesity as an independent risk factor and acriticalcontributortostress-relatedandmixedurinaryincontinence.The review delves into the potential mechanisms linking obesity tourinary incontinence, highlighting the impact of excess body weightonpelvicfloor structures.

Introduction:-

The prevalence of obesity is increasing worldwide and has lately reached epidemicproportions in many countries. Epidemiological studies have consistently shown thatboth overweight and obesity are important risk factors for the development of variousfemale pelvic floor disorders including urinary incontinence, pelvic organ prolapse, andfecalincontinence, as wellas resistanceto treatment.

Since obesity is a potentially modifiable risk factor for urinary incontinence, weightreductionmay bean effectivetreatmentoption.

While the definition of UI varies from ever to occur within a definedperiod,datafromalargenumberofstudiesindicatedthatUIinwomenisassociated with higher BMI and weight[1]

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MechanismofobesityrelatedUI:

While to our knowledge the mechanism of the obesity-UI association is unknown, it istheorized that excess body weight increases abdominal pressure, which in turn increasesbladder pressure and urethral mobility, leading to stress UI and also exacerbatingdetrusorinstability and overactivebladder.

Likepregnancy,obesitymaycausechronicstrain,stretchingandweakeningthemuscles,nervesand other pelvicfloor structures [1].

Obesityisassociatedwithincreasedpressureonthepelvicfloor,whichresults in damage to nerves and muscle and a higher prevalence of SUIthan occurs in non-obese individuals.

ObesitymayresultinincreasedIAP,compromisingPFMintegrity,damagingnerves,muscles, andconnectivetissue,resulting in urethralhypermobilityFurthermore,obesitycausesdescentandrotationof the bladder neck and part of the urethra, changing the pressure gradientand generating urine leakage justifying the most frequent type of UI wasthatthe SUI in both groups.

Furthermore, the prevalence of obesity in certain populations ishighlightedtounderscoreitsrelevancetourinaryincontinence.[3]

Theurge-incontinencemayhappeninobesewomenduetoareducedamountofthe hormone ghrelin , this hormone inhibits the detrusor muscle contractileresponse,bringing adverseeffects onurinary control.

The decreased ghrelin may result in increased detrusor muscle contractile responseinobesewomen, causingurgency andurgeincontinence[3].

There are three common subtypes of UI in adult women; stress UI (SUI),urge UI (UUI), and mixed UI (MUI), which combines UUI and SUI. TheICSclinicallydefinesSUIastheinvoluntaryleakageofurineduringincreasedabdominalpressure, intheabsenceofdetrusor contraction.

Inacross-sectionalstudydoneamong Jordanianwomen,40.6%wereoverweightand 38.9% were obese. [2]

Weight has a greater impact on SUI (including mixed incontinence) thanurge incontinence, and urinary incontinence improves significantly withweight loss ,The impact of weight loss on these different types isexamined, highlighting the greater influence of weight on stress urinaryincontinence. The benefits of weight loss interventions, including surgicalandbehavioralapproaches,arediscussed,emphasizingthepositiveeffectson incontinencefrequency and severity.[7]

Urinaryincontinenceisanimportanthealthproblemforwomen,affectingover 13 million women in the United States, and has a profound adverseeffecton quality of life.

Depending on the type of incontinence, bladder muscle training,pharmacologictreatment,andsurgerymaybeconsidered[10]

Themainstayoftreatmentforbothstressandurgeurinaryincontinenceisbladdertraining,toiletingassistance,and/orpelvicmu sclerehabilitation

Thesebehavioralapproachesareonlymodestlyeffective,andinmanycases, a second lineof therapy is needed.

Effectofweightlosson UI

Because obesity is a potentially modifiable risk factor for urinaryincontinence, weight reduction has been shown to be an effectivetreatmentoption.Abeneficialeffectofweightlossontheprevalenceand frequency of incontinence has been found in surgical andbehavioralweightreductioninterventions [8]

Surgeryasamethodofweightreduction

Reductions in urinary incontinence have been observed in morbidly obesewomenwhohavehaddramaticweightlossafterbariatricsurgery.

The pathophysiologic basis for this relationship is the significantcorrelation between body mass index (BMI) and intra-abdominal pressure,suggesting that obesity may stress the pelvic floor secondary to a chronicstateof increased pressure[9]

Second-line treatment for stress incontinence is frequently surgical.Althoughsurgeryiseffective,itisassociatedwithdiscomfortandaprolongedrecoveryperiod,andincontinencemayrecurovertime.

Concerns about higher rates of failure and operative complications inobese women have led to debate about the role of surgery in thispopulation,althoughthesafetyandeffectivenessofcontinencesurgeryinobesewomen has been supported by the literature .

Inaddition,manywomenprefernottohavesurgery,andothers,particularlyobesewomen, arepoor surgicalcandidates.

Because obesity is a potentially modifiable risk factor for urinaryincontinence,weightreductionhasbeenshowntobeaneffectivetreatmentoption [6].

In observational studies, severely obese women (.45 kg above idealweight) with incontinence who had dramatic weight loss after bariatricsurgery(45–50kg)hadsignificantimprovementinurinaryincontinence.

Inanothersurgicalcohortundergoingbariatricsurgery,theprevalenceofpelvic floor disorder symptoms including urinary incontinence improvedfrom87% beforesurgery to65% after surgery[8]

Inacohortof253morbidlyobesepatientsundergoinglaparoscopicsleevegastrectomy, stress urinary incontinence was reported preoperatively in 60(32%) females, and complete resolution or improvement was reported in54 (90%) patients [8]

Midurethral slings, such as retropubic tension-free vaginal tape (TVT) andtransobturator tape (TOT) procedures, are the standard treatments forfemaleSUI.However,incasesofSUIduetointrinsicsphincterdeficiency(ISD), which has a low treatment rate, there is an increasing trend towardtreatmentwith midurethralsling surgery using anew device.

The readjustable midurethral sling (REMEEX system) was introduced as anew device that combines the advantages of a less-invasive approach andtheopportunity of slingre-adjustmentto increasethesuccess rateand over-comethecomplicationsgenerallyreportedaftertheposition-ingofother compressive pubovaginal slings[7].

Benefitsofweightlossataglance

decreased frequency of urinary incontinence episodes has also been observedfollowing enrollment in behavioral weight loss programs, including very lowcalorieliquiddietandintensivelifestyledietandexerciseinterventions.[8]

A beneficial effect of weight loss on the prevalence and frequency ofincontinencehasbeenfoundinsurgicalandbehavioralweightreductioninterventions[5]

Losses between 5% and 10% of body weight are sufficient for significanturinaryincontinencebenefits.Thus,weightlossshouldbeconsideredasaninitialtreatmentforincontinenceinoverweightandobesewomen [10]

A 3-month studyreported that overweight and obese women randomlyassigned to a very-low-calorie liquid diet had a significantly greater decrease inthe weekly number of urinary incontinence episodes than

those assigned to nointervention, thisstudy concluded that, weight reduction is a clinically feasibletreatmentoption for incontinence[9]

In another case-control study by Leslee et, the relationship between thepercentage of weight loss and number of incontinence episodes in 7-daydiaries was studied, the women in the intervention group had a meanweight loss of 8.0% (7.8 kg), as compared with 1.6% (1.5 kg) in thecontrol group (P<0.001). After 6 months, the mean weekly number ofincontinence episodes decreased by 47% in the intervention group, ascompared with 28% in thecontrol group (P= 0.01).

As compared with the control group, the intervention group had a greaterdecreasein thefrequency of stress-incontinenceepisodes (P= 0.02).

Ahigher proportion oftheinterventiongroup than ofthecontrolgroup hada clinically relevant reduction of 70% or more in the frequency of allincontinence episodes (P<0.001), stress-incontinence episodes (P = 0.009),and urge-incontinence episodes (P= 0.04) [4].

The relationship between body fat proportion and increased symptoms ofover active bladder is well studied, the prevalence of OAB in the groupwith BFP > 32% was 57.7%, and in the group < 32% was 12.2%. Therewas a strong relationship between increased BFP and worsened OABsymptoms, as evaluated by voiding diary, the intensity of urgency scale,and over OAB-q [4]

Thegenerallyacceptedcriteriaforsurgicalinterventioninthemorbidlyobese were developed by the National Institutes of Health at the 1991Consensus Development Conference.

These criteria specify that patients with BMI of 40 kg/m greater arepotentialcandidatesforsurgeryiftheystronglydesiresubstantialweightloss and because their obesity severely impairs the quality of their lives.The womenwere seeking evaluation for surgical management of theirweight loss, which has proven to be the only effective intervention forsubstantialand sustained weightloss in themorbidly obese .

Symptoms of urinary incontinence were present in two-thirds (66.9%) ofthis morbidly obese female population, the majority with mixed stress andurgeincontinence.

This is higher than the general population-based prevalence rates of 14 –58% reported for women 30 – 40 years of age .[6]

Although a mechanical mechanism has been proposed for stress urinaryincontinence in overweight and obese women, an inflammatory responseintheurinarybladderhasbeenproposedfortheoveractivebladder.

Elevated levels of urine biomarkers involved in inflammation and tissuerepairhavesuggestedaroleforinflammationintheoveractivebladder.

Obesityinducedbydiethas alsobeenshowntobeassociatedwith macrophage infiltration into adipose tissue, a process which has beenproposedtoaffectadipocytessurroundingthehumanbladder,leadingtoinflammation and overactivebladder symptoms

There appears to be a stronger association between increasing weight andprevalent and incident stress incontinence (including mixed incontinence)thanforurgeincontinenceandoveractivebladdersyndrome.However,theprecise mechanism of the association between obesity and incontinence isunknown. [8]

Conclusion:-

In conclusion, the paper provides a comprehensive overview of theintricate relationship between obesity and urinary incontinence. Ithighlights the importance of recognizing obesity as an independentrisk factor, explores potential mechanisms, and discusses effectiveinterventions, including weight reduction strategies. The reviewcontributes to the understanding of this complex interplay andencouragesfurtherresearchtoenhanceclinicalmanagement.

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