Fluid Retention Syndrome in Women

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Abstract

The term "FRS" is more accurate than the commonly used term "idiopathic edema" as it embodies the view that the condition has multi factorial aetiolgy. FRS of women may defined as fluid retention occurring in the absence of well - defined hydrostatic or oncotic mechanism as a result of congestive cardiac failure, hypoproteinema or local venous or lymphatic obstruction.

FRS may result from humoral, metabolic, autonomic and iatrogenic mechanisms. The syndrome comprises a triad of fluid retention, autonomic disturbance and affective disorder, the latter froms the integral aspect of the syndrome and the condition is a true psychosomatic disorder.

The symptoms of fluid retention are varible and many patients are subjected to multiple hospitel refrrals for unnecessary investigations, medication or surgery which can be avioded once the unitary nature of the syndome is well appreciated.

From November 1991- Nov. 1994 we could study 52 cases of typical triad symptoms of FRS between the age of 16-52 years (mean 36.5 years).

Those cases repesent oure ongoing workup to find out more cases to establish the syndrome as atrue entity in our current medical practice.

Introduction

Fluid retention syndrome in women (FRS)

The commonly used term for FRS "Idiopatic edema" is misleading, because sufferers rarely show pitting or. dependent edema and contributory risk factors can be defined, the descriptive trem "FRS" is more accurate as it embodies the view that the condition has multi factorial aetiology.

In the mind of many doctore :"FRS" exists as nebulous entity associated with women who demand diuretic for "bloating" or " swelling".

The condition is frequently, confused with premenstrual tension and some deny its existence dismissing as imaginary the complaints of women who insist that they swell during the day have to spend the evening in loose dressings[1].

Definition

"FRS" may be defined as a fluid retention in the absence of well defined hydrorstatic or oncotic mechnism as result of congestive cardiac failure, hypoproteinemia or local venous or lymphatic obstruction.

Most patients are between 20-50 years but the onset may follow menopause. it is rare in children, although the syndrome was found between 2-10 years of age where there is strong family history of the syndrome. The FRS is extremely rere in males[1].

Aetiology

FRS may result frome humoral, metabolic, autonomic and iatrogeinc mechanisms[2].

Although the aetiology is uncertain, increased permeability of capillary walls accentuated by arteriolar vasodilation appears to be a primary causal factor[3,4], both mechanisms result in the transfer of fluid from the vascular to the extra vascular compartment with the resulting hypovolemia leading to sodium and water retention through Renin-Angiotensin-Aldosterone system.

Clinical Features of FRS

These comprise a triad of symptoms of *fluid retention* , *functional autonomtic disturbance*, and *affective psychiatric disorder*[2]. The second and the third components of the triad are persent to a variable degree in the individual pations.

Fluid retention leads to complaints of swelling of the face, hands, breasts, abdment and legs, which become worse as the day advances. The patient frequently changes into loose clothes, and the hour at which this occurs is a useful measure of the severity of the disorder. The patients's face may appear puffy and bolated, rings may be discarded and a distended abdomen may lead to accusations of pregnancy.

Most women retain fluid to some extent, during premenstrual period, and there is no clear dividing line between normal and abnormal fluid retention. Fluid retention is usally accompanied by diuranal weight gain of between 1.4 and 6.0 Kg(3-14 1b) daily. A diurnal weight variation of more that 1.4 daily is abnormal[5]. Longer term fluctuations weight with a periodicity of 1-2 weeks are not uncommon.

Parasympathetic overactivity

That includes hyperactivity of the bowel, bladder and vascular system, a history of irritable bowel; with complaint of abdominal pain, intermittent diarrhea and constipation is common and the patients my be referred to gastroentrologist or gynecologist.

Complaints of urge frequency of micturition amonuting to urge incontience and in severe cases may lead to unnecessary antibiotics treat-

ment for urinary "infection" or referral to a urologist.

Intermittent vasovagal attacks are not uncommon and lead to a mistaken diagnosis of epilepsy and neurological referral.

Most fluid retention patients exhibit symptoms of varying degree of affective disorder, these range from minor degree of fatigue, irriitability, anxiety and depression. Affective symptoms frome an integral part of FRS and the condition is a true psyohosomatic disorder[6] .

Visual. blurring caused by retinal edema is common in fluid retaining patients; and lead to consult the Ophthalmologist.

Tension headaches commonly accompany affective symptoms, in few patients headaches is severe and worse in the morning resembling headache of increased intracranial pressure, presumbly caused by a degree of cerbral edema.

Polydipsia result from hypovolemic stimulus following extravastion of fluid from intravasscular to extravascular compartment leads to consumpiton of large quantities of fluid with nocturnal polyuria.If thirst is intense the patient may be suspected of having diabetes mellitus or hysterical water drinking.

In summary the symptoms of FRS are variable and many patients are subjected to multiple hospital referrals for unnecessary investigations, medications or surgery which can be avoided once the scope of the syndrome is appreciated.

Risk factors for FRS

Recognition of the contributory risk factors in fuluid retention is essential for rational management.

Metabolic Factors

Obesity or a history of weight gain is found in most fluid-retainig patients. A family history of diabetes is common, and acute fluid retention may occure in the both sexes with the instilution of insulin therapy for diabetes mellitus ('insulin oedma')[7] Subacute and chronic froms of diabetic oedema are seen in young women with unstable diabetes[8].

Endocrine Factors

Thyrotoxicosis, hypothroidism[9] and estrogens may be associated with fluid retention. More subtle endocrine disturbances may be involved in the aetiology of fluid retention.

In one study, urinary dopamine levels were low in patients with fluid retention[10] and, in another, gonadotrophin level were raised after stimulation with releasing hormones compared with control patients[11].

Rsychiatric Factors

Affective symptoms are common in fluid-retaining patients and onset may follow emotional stress

related to life-events.

Iatrogenic Factors

Drugs may precipitate fulid-retaining symptoms in predisposed patients.

Short-term Precipitants

Prologed standing, high ambient tempertures, a febrile illness and acute emotional stress, liberal dietary intake (Alcohol, high carbohyrate diet) may accentuate pre-existing fluid retention [Table1].

Hypotheical Links between the Risk Factors and the Fluid Retention Syndrome

The nature of the endocrine or metabolic defect responsible for abnormal fulid retention in women is unknown. Increased sympathetic activity may diminish renal sodium and water excretion via diminshed renal dopamine synthesis[10]. Active neurogenic vasodilation with increased bowel and bladder contractility leading to fluid retention, the irritable bowel syndrome and urge frequency of micturition may have a common basis; increased parasympathetic (cholinergic) activity. In fluid-retaining patients, increased autonomic activity appeares to be driven centrally via the connections of the hypothalamus with limbic system; the putative site of affective disorder.

The association of fluid retention with obesity, diabetes mellitus or a diabetic family history may result from the absoute or relative hyerinsulinaemia that commonly accompanies these metablic disorders. Insulin is Known to induce renal retention of solium and water, and insulin-mediated upregulation of cellular sodium/potassium ATPase results in efflux of sodium from the intracellular compartment and fall in intracellular sodium and calcium that will lead to fall in ressistance vessel resulting in arteriolar vasodilation increases capillary ultrafiltration and augments fluid retention via arterial hypovolemia. As in type- II diabetes mellitus, insulin responsiveness may be restored by dietary restriction, leading to effective weight loss.

The mechanisms of vasodilating precipitants of fluid retention (such as thyrotoxicosis, fever and high ambient temperature) and of iatrogenic precipitants such a estrogens, danazol and NSAID's are well recongnized and require little comment[12,13].

Management of the Fluid Retention Syndrome

It is important to reach an accurate diagnosis of the condition based on the exclusion of cardiac, hypoproteinaemic and obstructive cases of oedema. this may be achieved by appropriate screening investigations, a characteristic history and the demonstration of the abnormal diurnal weight variation by means of weight chart kept by the patient over a peri-

od of 2-4 weeks. Most cases respond to removal or modification of the contributory risk factores listed earlier.[Table 2].

Weight-reactive Fluid Retention

Where fluid retetion is wieght-reactive, the important aspect of management is to return the patient to a traget weight. This may be defined either as the patient's weight in early adult life or, less ambitiousuly, body weight prior to the onset of fluid retention. It is important to set realistic goals for weight reduction. Long-term weight loss of 0.5-1.5 Kg (1-2 lb) weekly is satisfactory but losses of up to 2.3-2.7 Kg (5-6 lb) may occur in the first weeks of dieting as a result of fluid loss. Salt restriction is unnecessary beyond that imposed by reduced caloric intake. fluid intake should not be restricted.

Symptoms of bloating and swelling subside, accompanying affectve symptoms improve, and in many cases, the patient describes a sense of well-being and positive health that may have been absent for many years. In most cases of weight-reactive fluid retention, dietary means are sufficient to control symptoms, diuretics are usually unnecessary and not be prescribed initally.

Psychiartic Fluid Retention

A proportion of non obese fulid-retaining patients give no history of weight gain before the onset of syptoms. In these patients, the dominant risk factors are usually emotional, and diuretics are effective in controlling symptoms in inverse proportion to the degree of psychiatric abnormality present.

Symptoms of autonomic hyeractivity often improve with treatment of fluid-retaining symptoms by dietary means. Severe syptoms of the irritable bowel or urge frequency of micturition may require the prescription of an anticholinergic drug. In patients with severe urge frequency and incontinece of micturition, a referral to a urologist for urodynamic studies and bladder retraining may be necessary. Affective symptoms often improve with the treatment of fulid retention, but patients with severe anxiety and deression remain unwell and may require psychiatric referral.

Iatrogenic fluid Retention

This ceases when the offending drug is stopped. Fluid retention related to thyroid disoder responds to specific treatment. Diabetic oedema is best managed by dietary measures to achieve ideal weight and the establishment of optimal metablic control; diuretics may be required in some cases.

Role of Diuretice

The place of diuretics in the management of fluid retention is controversial. On one hand, the only treatment many patients receive is a diuretic prescribed by general prac-

titioner for 'bloating', while on the other, it has been claimed that fluid retention is diuretic-induces illness[15].

According to the author's experience, fluid-retaining symptoms have invariably preceded the prescription of a diuretic; women are recultant to take diuretics and anxious to stop them. However, it is possible that diuretic abuse (like laxative abuse) is seen in a few patients referred to specialist centers.

Diuretics are most effective in non obese fluid retaining women with no history of weight gain or severe affective illness.

As weight increases or psychiatric illness becomes more severe, they become less effective. This may lead to the consumption of increasing doses of diuretic (especially loop diuretics) with the consequent risk of electrolyte depletion. Diuretics are usually inffective in obese fluid-retaining patients or in patients with severe psychiatric disorder regardless of weight.

A thiazide diuretic with either a potassium supplement or potassium sparing diuretic should be prescribed if required. Loop diuretics should be avoided and spironolatone is no longer recommended for the treatment of fluid retention sydrome.

Many women find that diuretics are required only intermittently to control exacerbation of fluid retention related to the risk factors descibed above. If these removed or subside spontaneously, diuretics may be gradually reduced and discontinued. However, patients who discontinue diuretics should be warned that withdrawal my be followed by 1-2 weeks of self-limiting rebound oedema.

Role of Other Drugs

Several other drugs have been used in the management of the fluid retention in small numbers of patients. These include bromocriptine, levodopa, dexamphetamine, propranolol, captopril and chlorpropamide. In the author view, these drugs have no place in the management of most patients with fluid retention their use should be restricted to patients with refractory fluid retention syndrome referred to : specialized centers[1].

Prognosis of the fluid retention syndrome

The results of managing most patients with weight-reactive fluid retention are good provided that the patient complies with dietary advice and attains target weight. Relapses inevitably occur as a result of dietary indiscretions when the fluid-retaining symptoms return. These can be controlled by returning to a strict diet and optimum weight.

The prognosis for relief of symptoms is not as good for slim pa-

tients with severe affective symtoms related to neurotic or depressive illness or to continuing social stress, or for patients who cannot loose weight. Even in these patients, support and explanation of the nature of the illness is therapeutic, enabling the patient to understand and cope with previoualy in comprehensible symptoms. The management of this common condition deserves more attention and knowledge of the unitary of the syndrome.

Research and Discussion

I have started conducting this work for the first time in our country willing for the future fluid retention clinic to enrich the pool of cases referral.

From autumn 1991 to november 1994 I could register 52 women of typical triad symptoms of the syndrome, between the age of 16 to 52 years mean age (36.5 years) and for ethical purposes I asked our registrars in the medical unit in Merjan hospital for case reporting in special printed formula.

We have met a lot of technical, laboratory and economic difficulties and lack of endocrine assay because of the present situation of our country due to imposed sanction, but we could overcome those problems by extensive medical efforts, utilizing the available facilities coupled with intensive follow up of cases.

We have study those cases by screening then with the appropriate investigations to exclude other causes of oedema. We informed the patients to have weight chart (2-4 weeks), but for economical reasons we have received only 20 weight charts that eventually showed the diurnal variation in body weight .

We could not register children cases although pediaricians have mentioned undefined oedema in a few children. Strong family history of the syndrome could be got in most of the patients. History of diabetes mellitus and diabetic family and thyroid disease were present in significant number of cases (24,14) respectively and in (14) multiple endocrine disorders (Diabetes mellitus, thyroid disease, menstrual disorders ...) could be observed. Over weight was found in most patients and psychiatric patients with ideal body weight was detected in lesser number of cases .

We will continue our ongoing work up to find out more cases to establish the syndrome as true entity in our current medical practice.

Acknowledgment

I would like to conduct my thanks and appreciation to Dr. A.S. Jaber, Dr. R.J. Aljanabi (Merjan hospital), and Mr. T.A. Alassadi for the great help in preparing the computer manuscript (Computer science department, Babylon University).

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Table 1 Major risk factors for the FRS

Female sex

Metabolic factors

- Obesity (20% over ideal weight-reactive fluid retention).
- Weight gain with in the normal weight range for age height (weight reactive fluid retention).
- Diabetic family history.
- Diabetes mellitus (diabetic oedema)

Endocrine factors.

- Oestrogens (premenstrual fluid retention).
- Thyroxine (hypo-and hyperthyroidism).

Psychiatric factors

- Reactive/ endogenous depression.
- Anxiety states-depression

Iatorgenic factors

- Steroid hormones (oestrogens as oral contracepives or as hormone-replacement therapy, fludrocortisone, danazol).
- Aldosterone-like compounds carbenoxolone, liquorice)
- NSAID's (including aspirin).
- Hypotensive druge (guanethidine, hydralazine, prazosin, calcium channel antagonists).

Table 2 Management of the FRS

Establish an accurate diagnosis

-Ask the patient to complete twic-daily weight chart for 2-4 weeks.

- Exclude cardiac, hypoproteinaemic and obstructive causes of oedema

Explain:

- the nature of the symptoms.

- the risk factors.

- the short term precipitants of fluid retention .

- Withdraw offending drugs.

Advise

- A reduced calorie intake.

- A realistic rate of weidt loss.

- A target weight for weight reactive fluid retention (do not prescribe diuretics)

Prescribe a diuretic if indicated (not spironolactone)

- A thiazide plus a potassium supplament, or.

- A thiazide plus a potassium-sparing diuretic.

Treat associated autonomic symptoms

Refer patients with severe affectivs illness to a psychiatrist.

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