WHAT IS BURNOUT?

Because the null coping or maladjustment of workers to the demands of their psychosocial factors at work, there is Syndrome Burnout by the work how the response individual physiopathologic to the chronic job stress.

It has three dimensions:
- Reduced personal accomplishment at work
- High emotional distress or mental
- Depersonalization (misconduct);
- Feelings of guilt.

1 Type: 3 first dimensions.
2 Type: 3 dimensions, plus guilt.

CAUSES OF BURNOUT

1.- Factors in the social environment of the organization
- Work overload or changes in the way of work

2.- Physical-technological organizational factors
- Job insecurity or poor remuneration.

3.- Social-interpersonal organizational factors
- Poor teamwork or interpersonal conflicts
- Destructive competition or role ambiguity.

4.- Personal history of members of the organization
- Sex, age (professional inexperience), marital status, seniority, negative affectivity, perfectionism.

WHAT IS HTA?

Hypertension is a chronic disease of unknown etiology multifactorial, characterized by sustained increase in systolic pressure \( \geq 140 \text{ mmHg} \) and diastolic pressure \( \geq 90 \text{ mmHg} \).

**TYPE:**
- The essential or multifactorial origin:
  - Hereditary history of hypertension
  - Overweight, obesity,
  - Mental stress or smoking
- The secondary or associated with other causes:
  - Chronic renal failure
  - Primary aldosteronism
  - Thyroid disease or parathyroid

**CLASSIFICATION:**

- Stage 1: \( 140-159 / 90-99 \text{ mm Hg} \)
- Stage 2: \( 160-179 / 100-109 \text{ mm Hg} \)
- Stage 3: \( \geq 180 / \geq 110 \text{ mm Hg} \)
**SQT – HYPERTENSION ASSOCIATION**

The possible pathways connecting the SQT with Hypertension are:
- Deregulation of the hypothalamic-pituitary-adrenal (HPA).
- Inflammation and immunity disorders.
- Blood clotting disorders (for alteration of fibrinogen).
- Sleep disturbances.

**PATHOPHYSIOLOGY SQT-HYPERTENSION**

Inflammatory cytokines involved (TNF, IL-1 and 6) cause stimulation of the HPA axis, even anxiety or drowsiness affecting the Central Nervous System.

After activating tissue inflammation is the acute phase due to CRP, serum amyloid A and ceruloplasmin. But in turn decreases albumin causing poor transportation and bad inhibition of production of corticosteroids.

And because norepinephrine also induces an acute phase response, favors the origin of the SQT-HTA.

**OBJECTIVE**

To determine the association between the presence of burnout and the development of hypertension, also the cardiovascular risk in Firefighters from Mexico City

**METHODOLOGY**

This is an analytical, cross-sectional correlation, which makes the measurement of psychosocial variables and biological on firefighters.

The study has total sample of 181 workers, fireman form 6 stations and clerical and general services personnel.

**VARIABLES**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>VARIABLES</th>
<th>OPERATIONALIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent</td>
<td>SQT o Burnout</td>
<td>CESQT</td>
</tr>
<tr>
<td>Dependent</td>
<td>Hypertension</td>
<td>Diagnosis of hypertension with pressure tap at least 2 different days, using digital Blood Pressure.</td>
</tr>
<tr>
<td>Dependent</td>
<td>Cardiovascular Risk</td>
<td>Framingham Index</td>
</tr>
<tr>
<td>Confusión</td>
<td>BMI</td>
<td>Weight and height measurements, using tilts and measuring tape.</td>
</tr>
<tr>
<td>Confusión</td>
<td>Total Cholesterol and HDL</td>
<td>Take fasting blood sample.</td>
</tr>
<tr>
<td>Confusión</td>
<td>Diabetes and Smoking</td>
<td>CESQT</td>
</tr>
<tr>
<td>Confusión</td>
<td>Sex, Age, Age of Labor</td>
<td>CESQT</td>
</tr>
</tbody>
</table>

**METHODOLOGY**

Instruments:
- CESQT (searching and pains associated demographics of burnout). 1st day application.
- Measurement of anthropometric variables or weight, height
- Measurement of blood pressure (three consecutive measurements) in two different days.
- Blood samples to measure blood lipids.

Statistical analysis:
- By SPSS 19, using Chi2
RESULTS

Sociodemographic Characteristics and Employment of firefighters:

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>20.4% were female and 79.6% were men.</td>
</tr>
<tr>
<td>Age</td>
<td>66.1% are between 35 to 48 years</td>
</tr>
<tr>
<td>Job Title</td>
<td>79% were “firefighters” in active service, 8.8% were administrative or union, and 2.8% were secretaries.</td>
</tr>
<tr>
<td>Seniority</td>
<td>The 48.3% had 13 to 22 years</td>
</tr>
</tbody>
</table>

**Prevalence of burnout and hypertension in firefighters:**

A 2% had SQT (2 cases of burnout type 1 and 2 cases of burnout type 2). A 12% had latent risk for developing burnout.

The hypertension prevalence was 10% (with 18 positive cases). A 51% were at risk (92 pre-hypertensive).

**Association between Burnout and Hypertension:**

A significant relationship was found (p = 0.04) between the presence of burnout and high blood pressure in firefighters of D.F.

**Stressful activities:**

1. - The recovery of bodies (33.5%).
2. - The rescue of victims and control flammable and toxic spills (22.9%).
3. - The fire control (17.3%).

**Most common symptoms of hypertension in firefighters:**

1) Phosphenes (35.8%).
2) Dizziness when changing positions or up (28.5%).
3) Tinnitus (25.7%).

Moreover, the link between symptoms and prevalence of hypertension, was significant with Tinnitus (Chi2 = 0.04).

**Association between burnout dimensions and hypertension:**

Both the professional disappointment (p = 0.02) as the psychological exhaustion (p = 0.03) confirmed a link with hypertension.

With regard to sex, were found only in men professional disappointment (p = 0.01) are relevant to hypertension.

**Relationship between burnout and hypertension:**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Hypertensive</th>
<th>Non-hypertensive</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 1</td>
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<td>0.0</td>
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<tr>
<td>Type 2</td>
<td>0.0</td>
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</tr>
<tr>
<td>Total</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Relationship between burnout and tinnitus:**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Tinnitus</th>
<th>Non-tinnitus</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 1</td>
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</tr>
<tr>
<td>Total</td>
<td>0.0</td>
<td>0.0</td>
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</tbody>
</table>
RESULTS

Relationship among Burnout and hypertension with other risk factors:

It was found that novice workers (2 to 12 years old) are susceptible to both burnout and Hypertension (Chi² = 0.02).

Another association was total cholesterol with burnout and hypertension levels of 116 to 159 mg (Chi² = 0.000).

Finally the presence of obesity (by BMI) showed a positive influence (Chi² = 0.03) on hypertension and burnout.

CONCLUSIONS

✓ That there is a significant association between burnout and hypertension in firefighters.
✓ With a prevalence of 10% in those of hypertension and 2% of burnout.
✓ Seniority, BMI and low cholesterol levels were also associated to Burnout and hypertension.

Mexico City firefighters are exposed to chronic job stress that causes in them BO and HTA. For this reason, it is fundamental to impel in a short term preventive actions to avoid more health damages of this important group of workers.

RECOMMENDATIONS

Organizational and Individual Levels:

- Establish feedback mechanisms of the employment outcome
- Promote teamwork and peer social support at work.
- To improve communication networks and establish clear lines of authority and responsibility.
- Enable it to identify or resolve technical problems and to promote good conduct.
- Encourage the system of participatory democracy at work.
- Increasing the degree of autonomy and job control, decentralized decision-making.

AKNOWLEDGEMENTS

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